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THE UNIVERSITY OF ALBERTA

RURAL-URBAN PERSONALITY AND ADJUSTMENT AMONG ALBERTA HIGH SCHOOL YOUTH

by

© JOHN ROBERT REDDON

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
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IN
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DEPARTMENT OF RURAL ECONOMY

EDMONTON, ALBERTA
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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled RURAL-URBAN PERSONALITY AND ADJUSTMENT AMONG ALBERTA HIGH SCHOOL YOUTH submitted by JOHN ROBERT REDDON in partial fulfilment of the requirements for the degree of MASTER OF SCIENCE in RURAL SOCIOLOGY.

Supervisor

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Date November 20, 1979

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ABSTRACT

The purpose of this investigation is to evaluate rural-urban differences and similarities in personality and adjustment among Alberta high school youth. In order to evaluate rural-urban differences in personality and adjustment rural-urban demographic equivalence is evaluated. It is demonstrated that where the rural-urban samples differ demographically that these factors are incorporated into the experimental design so that results are not erroneously attributed as rural-urban. Also it is demonstrated that the rural-urban strata represent the sampled population.

Personality is assessed with the Personality Research Form (PRF-E) and adjustment is assessed with the Basic Personality Inventory (BPI). The experimental design includes grade (11 and 12), migration, sex, and social class (five classes based on occupational prestige) in addition to residence location. The migration variable is based on adaptation level theory and consists of time and type of move. Type is similar (e.g., farm to farm) or different (e.g., farm to urban) and time of move is dichotomized at two years. Residence consists of three categories: farm, rural non-farm (acreages and towns up to 11,000) and urban (towns greater than 25,000 and up to 500,000).

With a canonical correlation analysis two canonical variates are extracted for the PRF-E and one for the BPI.

The first canonical variate of the predictor set accounts for 10% of the variance in the PRF-E and 7% of the variance in the BPI. In both the PRF-E and BPI canonical analyses the first canonical predictor variates are collinear with sex. The second canonical variate from the predictor set for the PRF-E accounts for only 2% of the variance in the PRF-E. All other analyses yield similar results with the exception of a sequential classification procedure, termed Modal Profile Analysis, in which there are no structural, classification efficiency, or distributional differences attributable to sex.

In an analysis of variance design interactions among explanatory variables and ordering of variables used in the canonical analysis are examined. The interactions and all main effects (grade, migration, residence, and social class), except the main effects for sex, are trivial, 2% is the maximum explained variation for any of these. The strongest main effect for sex is with Nurturance (13.7% explained variance).

Modal Profile analysis is used to test empirically the theory of rural-urban ideal types. Rural-urban ideal type notions have been espoused since antiquity, became very prolific in the nineteenth century, and are associated with many of the founders of Sociology.

The rural-urban strata are partitioned into male and female groups (m = 6). The attribute standardization utilizes the norms for males and females derived in this

study. In each of the samples five profiles are retained for the PRF-E and four profiles are retained for the BPI.

The within sample classification efficiency with an epsilon of .50 ranges between 65.02% and 72.85% for the PRF-E and between 76.68% and 81.14% for the BPI. Cross sample replication (epsilon=.50) of the preliminary sample profiles ranges between 55.04% and 61.59% for the PRF-E and 66.37% to 81.14% for the BPI. Cross sample congruency, from within sample orientation, for the preliminary PRF-E profiles ranges between .78 and .90 (mean=.83) and ranges between .69 and .93 (mean=.76) for the BPI. On the basis of generalized canonical correlation procedures, four Modal Profiles are retained for the PRF-E and three Modal Profiles are retained for the BPI. With an epsilon of .50 cross classification efficiency of the Modal Profiles for the PRF-E ranges between 58.94% and 63.09% (mean=61.54%) and the cross classification efficiency for the BPI ranges between 62.33% and 71.93% (mean=68.60%).

Finally, with subjects classified to the positive and negative poles of Modal Profiles a cross tabulation with a chi square test for independence and a measure of uncertainty indicates that profile membership can not be predicted by knowing grade, migration, residence, sex or social class membership.

Implications of these results and directions for further research are presented.

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CHAPTER ONE

OVERVIEW

Introduction

Human origins date several million years (cf. Leakey and Lewin, 1977; Simon, 1972). Yet, the first known villages and towns did not appear until about 10,000 years before present and the first known cities did not emerge until about 6,000 years ago (Harris, 1975a; Hamblin, 1973). Hence, mankinds evolutionary history, organic as well as cultural, has been confined to low population density niches.

Prior to 1850 and the impact of the industrial revolution, not one country could be classified as predominantly urban (Davis, 1965). After 1850 the world population trend has been increased urbanization[1]

> "For the first time in human history, man is becomming typically an urban animal."
> (Gertler and Crowler, 1977, p. 40).

In Canada, during the period 1871 to 1976, the level of urbanization grew from 18% in 1871 to 76% in 1976 (Stone, 1967; Statistics Canada, 1978). Alberta has undergone a parallel change in urbanization, from 16% in 1901 to 75% in 1976 (Stone, 1967; Statistics Canada, 1978).

---

[1] Historical urbanization figures at the international level are not exact due to problems of comparability of rural-urban definitions and unavailability of data (cf. United Nations, 1952, 1955, 1977).

The Problem

Since the first known villages and towns appeared, interest has been shown in rural-urban differences (cf. Hertzler, 1936; Sorokin and Zimmerman, 1929). In the nineteenth century, with the decline of feudalism, the rise of industrialism and urbanism, and the formation of Sociology, numerous scholars began to examine the two types of social organization, namely rural and urban (cf. Nisbet, 1966). Yet very little empirical work was done in the realm of rural-urban adjustment or personality research until well into the twentieth century. As late as 1938, Wirth, epitomizing much of this earlier work, suggested universal rural-urban personalities.

Even though origins of personality assessment have been traced to the first known civilizations in antiquity (McReynolds, 1975), structured personality assessment, rather than global individual assessment, was not available until Woodworth (1917) published the Woodworth Personal Data Sheet, the forerunner of objective assessment devices. Until the advent of the digital computer in the 1940s, the usage of this technology, and the concomitant advances in the technology of assessing individual differences (cf. Jackson, 1970, 1971; Wiggins, 1973), research in rural-urban personality and adjustment differences was cumbersome and wrought with generalizations such as those suggested by Wirth (1938).

Statement Of Objectives

The purpose of this thesis is to examine rural-urban differences and similarities in personality and adjustment with the current technology of objective measures (cf. Jackson, 1970, 1971). The initial focus is on individual variables of personality and adjustment so that themes in the extant literature can be clarified. One sub-aim is to control for demographic characterisitics in a descriptive sense so that rural-urban demographic equivalence as well as the equivalence of the sample to the population can be evaluated. Otherwise rural-urban differences could be attributed to demographic differences rather than rural-urban differences, per se. A second sub-aim is to extricate analytically the independent contributions of migration, sex and socioeconomic status at the level of individual personality and adjustment variables so that the independent contribution of rural-urban effects can be assessed. Finally, at a higher level of abstraction, a typological analysis is undertaken whereby ideal types of people in terms of adjustment and personality are developed.

In this way ideal types are identified in rural and urban samples so that an empirical test of the rural-urban ideal type notions espoused by various nineteenth century scholars can be tested. The congruency between ideal types derived separately in rural-urban samples is an empirical test of the rural-urban ideal type notion.

Personality and Adjustment Defined

Personality is a general term that is abstract and over used (Allport, 1937). In terms of measurement, however, three areas of personality may be distinguished: adjustment, motives and social traits (Nunnally, 1967).

Adjustment is a bi-polar construct in which a low score not only indicates the absence of psychopathology, it indicates good adjustment. Motives are composed of needs, states and dispositions and are frequently construed as constituting the core or dynamics of personality (Murray, 1938; Nunnally, 1967). Social traits consist of the modal behavior of individuals with respect to other people and are thus less basic than motives (Nunnally, 1967). The notation throughout the thesis is to use the words motives and personality inter-changeably.

Measurement Of Personality and Adjustment

The dimensions of personality and adjustment are construed in the language of traits. Ideally, in terms of psychometric properties, a trait is a homogeneous dimension of the domain under investigation that is highly independent of all other dimensions in that domain, conforms to the cummulative measurement model, is free from response biases and demonstrates generalizability both theoretically and empirically to that domain (Jackson, 1970, 1971).

Independence consists of unidimensionality and orthogonality. Often a trait may not be unidimensional in a strict sense (Jackson, Ahmed and Heapy, 1976) but the various aspects of the trait constitute a unidimension with respect to other traits if the trait is highly independent of all other traits in the domain and the domain is well defined. An independent trait may be viewed geometrically as a basis vector in n-dimensional Euclidian space. Where n-dimensional space is spanned by n basis vectors that are independent of each other and have the property of being able to describe that domain completely. But in Euclidian space the basis vectors are indeterminate in that there is not a unique solution for the basis vectors. Thus trait independence is a necessary but not a sufficient condition for psychometrically robust traits.

Trait independence is frequently referred to as discriminant validity. Discriminant validity is an ideal that is strived for, but is never perfectly achieved in practice since it is virtually impossible to construct orthogonal traits unless the traits are orthogonalized after the fact (Johnson, 1966; Kaiser, 1967; Mulaik, 1972 p. 406-409); but the orthogonalization of traits is usually only performed in a regression situation where the independent contribution of each trait is desired and/or the researcher wishes to eliminate (partial out) the variance of certain variables from others. The orthogonalization of traits, however, is only practicable when the traits manifest a high degree of discriminant validity since each trait, transformed in this manner, must be interpreted by the correlations between the orthogonalized trait and the original traits. When poor discriminant validity is evidenced the orthogonalized traits will share a considerable amount of variance with many traits in the set. Hence trait orthogonalization, after the fact, is not a solution for poor discriminant validity and since it is impossible to create orthogonal traits, without a transformation to orthogonality, discriminant validity requires that items for a particular trait correlate more highly with the total score for that trait than the total score for any other trait in the domain.

Homogeneous refers to the inter-item consistency[1] of the trait (Cronbach, 1951) and is influenced by the definitional precision of the traits (Fiske, 1963). With poorly conceptualized traits, homogeneity is achieved at the expense of content sampling thus making the trait less generalizeable both theoretically and empirically to the domain under investigation. The cummulative measurement model emphasizes homogeneity since the items for a particular scale are combined additively to produce a score for that trait.

---

[1] In terms of classical reliability theory the inter-item consistency of a trait is the mean of all possible split half reliabilities (Cronbach, 1951; Lord and Novick, 1968 p. 93).

In order to maximize the generality of a trait, both theoretically and empirically, the trait should be broadly relevent to a wide variety of situations and have a solid grounding in psychological theory. An atheoretical approach to trait development is not warranted at this stage in the history of psychological assessment (Ashton and Goldberg, 1973; Jackson, 1971). The generality of a trait is usually confirmed through converging operations (Garner, Hake and Eriksen, 1956; Jackson, 1975; Margeneau, 1950; Torgerson, 1958). For example, peer ratings for the presence of a trait in an individual should correlate significantly in the expected direction with a self-report measurement of the trait. This is the notion of convergent validity.

Response biases are a source of error variance since response biases are characterized by responding to items without respect to content. The major sources of response biases are acquiesence and social desirability (Jackson and Lay, 1968). Acquiesence, the tendency to agree or disagree, regardless of content (Bentler, Jackson and Messick, 1971;

Morf and Jackson, 1972) can be minimized by having an equal number of positive and negative keyed items on each scale (Jackson, 1974; Smith, Kendall and Hulin, 1969). Social desirability, the tendency to respond on the basis of social desirability irrespective of item content (Edwards, 1957; Crowne and Marlowe, 1960, Jackson, 1974), can be minimized by making the traits highly independent of social desirability through a comprehensive item analysis and by having a scale designed to measure social desirability responding (Jackson, 1974). Desirability not only provides noise in measurement but is the basis of common variance between poorly operationalized traits thus producing spurious correlations in many studies. For instance, in the job satisfaction literature, the evidence indicates that social desirability responding may be responsible for reported relationships rather than content per se (Orpen, 1974; Wall, 1972).

Additionally, subjects that have responded carelessly or nonpurposefully should be eliminated from the subject pool. Typically, social science researchers eliminate these subjects on the basis of either bizarre responses, such as reported age greater than what is reasonable to expect from the sample or when there is too much missing data. This procedure is lacking though since it will fail to detect subjects that have in fact responded nonpurposefully but did not elicit bizarre responses on the few questions where this type of behavior could be unequivocally detected. Thus a special scale is required to detect this type of behavior that consists of items that have extremely low endorsement proportions in the population (Sechrest and Jackson, 1963). Jackson (1974) has termed this scale an infrequency scale.

The foregoing psychometric properties constitute what is frequently referred to as construct validity (Campbell, 1960; Campbell and Fiske, 1959; Cronbach and Meehl, 1955; Jackson, 1970, 1971; Loevinger, 1957).

Design

Before commencing the analysis the rural-urban continuum is post-stratified (Cochran, 1977) into farm, rural non-farm and urban groups according to farm residence and community size. Community size is taken as an indicator of position on the rural-urban continuum and is directly related to population density (Sorokin and Zimmerman, 1929).

Density is a multi-faceted concept, however, consisting of internal, external and building density (Snider, 1977). Internal density pertains to the manner in which the population is distributed within buildings (e.g., family size/number of buildings, population/number of bedrooms or population/number of units). External density pertains to the manner in which the population is distributed over space (e.g., population/number of buildings or population/acre). Building density pertains to the manner in which the buildings are distributed (e.g., number of bedrooms/unit, number of units/building or number of buildings/acre).

In this investigation density pertains to external density since the rural-urban continuum is a monotonic function of external density (Sorokin and Zimmerman, 1929). The sampling took place across the rural-urban continuum, defined as community size, to provide a broad spectrum of external densities. Rural-urban demographic equivalence, equivalence of the sample to the population, and the influence of grade, migration, sex and socioeconomic status are evaluated so that effects are not erroneously construed as rural-urban. To counteract the effect of region a stratified random sampling design, with equal allocation, is employed.

Scope

This study is limited to an analysis of adjustment and personality and since the rural-urban continuum is a direct function of external density other forms of density are not considered. The rural-urban literature is almost exclusively concerned with personality and adjustment. An evaluation of social traits in addition to personality and adjustment is infeasible at this time since the additional testing time would require multi-stage test administration.

Another limitation is that the personality and adjustment traits are not used to predict criterion relationships. A separate study will be needed to explore differences in criterion relationships between rural and urban environments. In this study any extrapolations that are made to external criteria must be based on the criterion related validity[1] of the measuring instruments that are utilized. Although there is a relationship between personality and adjustment (Lazarus, 1976; Trott and Morf, 1972), the purpose of this study is not to explore this relationship. Hence this study is limited to rural-urban differences and similarities in personality and adjustment; the relationship between personality and adjustment is not explored at this time. A final limitation is that this study is confined to public high school students in the province of Alberta.

Practical and Theoretical Applications

The practical relevance of this study is that since personality traits are associated with vocational interest and therefore vocational choice (Forer, 1953; Holland, 1973; Seiss and Jackson, 1970, 1971) and also job satisfaction once a vocation has been chosen (Schaffer, 1953); the role of rural-urban socialization as an influence on personality, mediating the differential vocational preferences of rural and urban youth is extricated. There are implications for government policy changes in terms of population growth and social services in rural/urban areas based on the rural-urban differences in persoanlity and adjustment. The theoretical relevance of this study is that our knowledge of the socio-cultural effects on adjustment and on personality development is enhanced.

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[1] Criterion related validity is the extent to which an operationalized construct relates to an external criterion, such as when scores on a scale measuring need for achievement are used to account for grades obtained in school (cf. Anastasi, 1976).

Plan of the Thesis

In Chapter II the rural-urban personality literature is reviewed and then studies indicating the importance of migration, region, sex and socioeconomic status for personality are reviewed. Then, in a parallel fashion, the rural-urban adjustment literature is reviewed and studies indicating the importance of migration, region, sex and socioeconomic status for adjustment are presented. Finally, the literature presented in Chapter II is summarized as hypotheses arising from the literature.

In Chapter III, the experimental design for the study is developed. Topics covered in this section are sampling; instruments used for measuring personality, adjustment and socioeconomic status; demographic information obtained and test administration.

Chapter IV is concerned with the sample; the selection of subjects for analysis; post stratification into farm, rural non-farm and urban categories; a detailed description of the sample using the post stratification categories; an evaluation of the demographic equivalence of the strata; and finally a discussion of sampling adequacy.

In Chapter V the methods of analysis are discussed: bivariate and canonical correlation analysis, analysis of variance which is illustrated by evaluating occupational aspiration and finally a higher order, typological analysis, Modal Profile Analysis, is discussed.

In Chapter VI the results in the attribute (ie., variable) space are presented. The order of presentation in this chapter consists of going from general to more articulate results. Thus simple bivariate correlations are presented first and then these results are summarized through canonical correlation. Each trait is then examined for personality and adjustment with analysis of variance. Multiplicative relationships are discerned by examining two way interactions. To motivate a comparison to the results obtained with bivariate and canonical correlations, the general linear model is used and results are interpreted in terms of explained variation rather than merely statistical significance. Then on the basis of these results the data are stratified on the basis of the most substantial source of variation in personality and adjustment, sex differences. Then the data for males and females are re-examined separately with bivariate correlations and finally the relationships are summarized separately for males and females through canonical correlations.

In Chapter VII the results for the typological analysis, Modal Profile Analysis, are presented. Firstly within sample profiles are derived. Then the preliminary sample profiles are replicated across samples and evaluated for congruence. Population or Modal Profiles are derived from the multi-profile multi-sample super matrix. Then the preliminary samples are classified at a typological level and the Modal Profiles are examined to discern whether or not the distribution of sources of variation posited for variation in personality and adjustment (grade, migration, residence, sex and socioeconomic status) are distributed differentially among the Modal Profiles.

Finally, in Chapter VIII, the results of the thesis are summarized and implications of these results and directions for further research presented.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The rural-urban personality and adjustment literature consists of about twenty-five empirical studies, none of which have been done in Canada. The personality literature is disjoint and inconclusive (cf. Nelson and Storey, 1969) and the adjustment literature is contradictory (cf. Dohrenwend and Dohrenwend, 1974).

In this chapter the rural-urban personality literature is presented in Table 2.1 and discussed. Then studies indicating the importance of migration, region, sex (Table 2.2) and socioeconomic status for personality are reviewed. Then the rural-urban adjustment literature is presented in Table 2.3 and then studies indicating the importance of migration, sex (Table 2.4) and socioeconomic status (Table 2.5) for adjustment are reviewed. Lastly the literature for personality and then for adjustment is synthesized as hypotheses arising from the literature.

Rural-Urban Personality Literature

The rural-urban personality literature, reviewed, is arranged historically from 1949 to 1977 in Table 2.1. These studies were conducted primarily in the United States but samples from Hawaii, Israel, Japan and Uganda have also been reported. Most of the studies were done with college students, although, the Haller and Wolff (1962, 1965) and Dixon, Roper and Ahern (1975) studies were done with high school students. The Ugandian study (Robbins, Kilbride and Bukenya, 1968) was done with the Baganda tribe but the age of the sample was not reported.

The results obtained from college students, to a greater extent than the high school studies, confound rural-urban with migration and are also subject to a more restricted representation of the population than the high school studies. With college students, the students classified as rural, are migrants, by nature of the location of colleges in urban areas. Also many of the students classified as urban at colleges would be migrants from other urban areas. Even with high school students, the problem of migration is evident.

Furthermore, only two studies have been reported that used a high school sample. In the Dixon et. al. (1975) study 40% of the items were changed in the Japanese translation of the Edwards Personal Preference Schedule (Berrien, 1968; Gordon, 1968). Since Golden (1978) with the Sixteen

Table 2.1

Rural-Urban Personality Literature

Study	Instruments and Sample	Results
Landis (1949)	Kuder Preference Record; 482 female, Washington college students.	Urban reared females were more aggressive.
Haller and Wolff (1962, 1965)	Sixteen Personality Factor Questionnaire; 431 male, Michigan high school students.	Urban males were more dominant.
Robbins, Kilbride and Bukenya (1968)	Psychophysical (method of production) time estimation as an indication of ease of need gratification; 246 subjects from the Baganda tribe in Uganda.	No difference in accuracy of time estimation but rural subjects consistently over estimated time.

Table 2.1

Continued

Study	Instruments and Sample	Results
Mattson (1974)	Sixteen Personality Factor Questionnaire; Hoyt-Grimm Pupil Reaction Inventory; 73 student teachers in Minnesota secondary schools.	Effective rural teachers were more reserve, shy, sensitive and introverted. Effective urban teachers were more outgoing, mature, confident, relaxed and unanxious.
Dixon, Roper and Ahern (1975)	Edwards Personal Preference Schedule; 581 high school students in Japan and Hawaii.	Urban students were higher in need for achievement, change and autonomy, but lower in need for abasement.

Table 2.1

Continued

Study	Instruments and Sample	Results
Weiner (1976)	Barron Complexity Scale; 126 Hawaiian college students.	The rural sample was less cognitively complex.
Nevo (1977)	California Psychological Inventory (Hebrew version); 232 Israeli college students.	Kibbutz born males and females were higher in achievement via independence.

Personality Factor Questionnaire found a significantly different factor structure between Caucasian and Japanese college students, the constructs measured in Japan and North America may not be equivalent. Thus results reported in Japan cannot be compared to North America results until equivalent measures are developed.

The literature presented in Table 2.1 indicates that rural-urban residents differ in abasement, achievement, aggression, autonomy, change, cognitive complexity, dominance and need elevation. The rural-urban personality literature, however, is equivocal due to the failure of these studies to consider migration. In the next section further qualification of the literature is introduced by reviewing studies indicating the importance of other variables for personality. The implications of these studies are then incorporated into the development of an experimental design in Chapter III.

Studies Indicating the Importance Of Migration, Region, Sex and Socioeconomic Status For Personality

Migration

Although migration has not been considered explicitly in rural-urban personality studies, Castellano (1976) has argued that residence location cannot be taken as an indicator of rural-urban socialization where migration has not been considered.

The results reported by Thiessen, Wright and Sisler (1969) indicate the influence of migration on two personality traits which are reported as significant in Table 2.1. With 204 rural and urban Mennonite students at bible colleges these authors found urban students were higher in need for abasement and dominance than their rural counterparts. Since the urban students were recent migrants from a rural area, migration rather than rural versus urban socialization appears to be responsible for the increased need for abasement and dominance of the urban sample.

Region

Krug and Kulhavy (1973) investigated 3,772 males and 2,672 females ranging in age from 16 to 60 in 36 states of the United States with the Sixteen Personality Factor Questionnaire. It was found that 28% of the personality differences among males and 30% of the personality differences among females were related to geographic origin.

Region, however, is not a unitary construct since demography and geography are subsumed under region. Thus, the Krug and Kulhavy (1973) study indicates demographic equivalence of samples must be considered when comparing people from different geographic locations.

Sex

Few studies have been undertaken to evaluate sex differences in personality. Reviews, however, such as Maccoby and Jacklin (1974) indicate the importance of sex differences in personality. The literature reviewed is presented in Table 2.2. Each study indicates the prevalence of sex differences. The Nesselroade and Baltes (1974) study, due to the size of the sample, confirms the indications in the other studies for sex as a source of variation in personality.

Table 2.2

Sex and Personality Literature

Study	Instruments and Sample	Results
Schaie (1966)	Teacher ratings of Cattell's personality descriptors; 650 school children in kindergarten through grade twelve in Nebraska.	Sex and age differences were found.
Vernon (1972)	Data on 130 variables; 198 boys and 189 girls in grade eight in Calgary, Alberta.	Significant sex differences were found in means as well as correlations.
Nesselroade and Baltes (1974)	Factor analytic merger, using Dwyer's factor extension procedure	Significant sex differences in personality at all ages with a consistent

Table 2.2

Continued

Study	Instruments and Sample	Results
	of the High School Personality Questionnaire, the Personality Research Form and the Primary Mental Abilities; 1,800 students in West Virginia aged 13 to 18.	tendency for sex differences to widen with increasing age.
Haskin and Cattell (1975)	High School Personality Questionnaire; 138 males and 142 females in grades 11 and 12 in the greater Edmonton, Alberta area.	Significant sex differences in means but no differences in variances or covariances.

Socioeconomic Status

Ahmed, Fry and Jackson (1972) investigated 253 heads of household in Ontario to determine the relationship of education, occupation and income with eleven personality traits. Significant correlations were found but the relationships were stronger for males than females. Although, the sex difference reported here may be due to the fact that in this sample only 25% of the females were gainfully employed.

O'Rand and Ellis (1974), using the Social Time Perspective Scale, compared 78 male freshmen with 198 newly enrolled job corpsmen in Oregon. The lower class job corpsemen were found to have less future social time perspective than middle class college youth. Lower class college youth were found to be in between the lower class job corpsemen and the middle class freshmen. The results of this study indicate that the lower socioeconomic strata have less future time perspective than the middle socioeconomic strata and may therefore have less elevated needs (Robbins et. al., 1968).

Rural-Urban Adjustment Literature

The rural-urban adjustment literature reviewed, spans the period 1943 to 1975 and is presented in Table 2.3. All of these studies were conducted in the United States, with the exception of Fischer (1973) who used French and American gallup pole data and a study in Finland by Vaisanen (1975). There are no consistent trends discernable with college, high school or pre-high school samples. With the adult samples, however, where prevalence of psychopathology is used as an index, the rural samples are better adjusted. Prevalence differences, however, may be due to migration because of the location of treatment centres in urban areas. Where rural and urban adults were sampled no difference is indicated (Vaisanen, 1975), although Fischer (1973) found a weak relationship when contrasting people residing in very large centres, in the city centre, with residents of small centres. People in large cities, in the city centre, were more poorly adjusted than residents of small centres.

Table 2.3

Rural-Urban Adjustment Literature

Study	Instruments and Sample	Results
Sewell and Amend (1943)	Minnesota Scale For the Survey of Opinions; 200 female college students in Oklahoma.	No differences.
Duvall and Motz (1945)	Personal-family adjustment questionnaire; 403 girls between the ages 14 and 24 in the mid-western United States.	Urban girls were less satisfied with their home atmosphere.
Stott (1945)	California Test of Personality; 1,217 students in grades four to eight in the mid-	Rural students had better self adjustment scores but no differences were

Table 2.3

Continued

Study	Instruments and Sample	Results
	western United States.	found in social adjustment.
Mangus (1948)	California Test of Personality; 1,229 third and sixth grade students in Ohio.	Rural boys had better self and social adjustment scores than urban boys. Rural girls had better self adjustment scores than urban girls but no differences were found for girls in social adjustment.
Landis (1949)	Bell Adjustment Scale; 482 college girls in Washington.	Females from an urban background were better adjusted.

Table 2.3

Continued

Study	Instruments and Sample	Results
Nye (1950)	Adolescent-Parent Adjustment Scale; 1,456 grade eight and eleven students in Michigan.	Urban children were better adjusted.
Osborne, Greene and Sanders (1952)	Bell Adjustment Scale; 583 male and female college students from Georgia.	Rural girls were better adjusted to their home environment.
Burchinal, Hawkes and Gardner (1957)	California Test of Personality and Rogers Test of Personality; 927 pre-adolescent children in Iowa, Kansas, Ohio and	No differences.

Table 2.3

Continued

Study	Instruments and Sample	Results
	Wisconsin.	
Hathaway, Monachesi and Young (1959)	Minnesota Multiphasic Personality Inventory; 11,322 grade nine students in Minnesota.	No difference was found in average elevation, but when profiles were examined rural students were more self-critical and suspicious of others and urban students were more apt to rebel against authority.
Munson (1959)	California Test of Personality; 500 students in New York.	Urban students were better adjusted.

Table 2.3

Continued

Study	Instruments and Sample	Results
Haller and Wolff (1962, 1965)	California Test of Personality and the Sixteen Personality Factor Questionnaire; 442 male, high school students in Michigan.	Rural boys were better adjusted but subject to more depressive anxiety.
Nelsen and Storey (1969)	Mooney Problem Checklist, 245 grade nine students in Kentucky.	Urban students were better adjusted.
Summers, Seiler and Hough (1971)	Midtown Psychiatric Impairment Index; 1,096 rural household heads of which 1,003 were re-interviewed a year later in	The rural sample demonstated a lower prevalence of psychiatric impairment than what is known in urban

Table 2.3

Continued

Study	Instruments and Sample	Results
	Illinois.	areas.
Fischer (1973)	French and American gallup pole data; 1,500 adults.	No differences between rural and urban in despair, except that people in very large cities, in the city centre, demonstrate more despair.
Dohrenwend and Dohrenwend (1974)	Review article.	Concluded that the rates of psychopathology are higher in urban than rural areas because of the greater amount of neurosis and personality disorder

Table 2.3

Continued

Study	Instruments and Sample	Results
		in urban areas. Since the differences are not large and since migration has not been evaluated, these authors suggest that the results should be interpreted with caution.
Vaisanen (1975)	Zuligers Projective Test and Warteggs Drawing Test; 991 working people in Finland between 15 and 60 years old.	No difference.

Studies Indicating the Importance Of Migration, Region, Sex and Socioeconomic Status For Adjustment

Migration

Abramson (1966, 1968) investigated, with a sociological survey, the adjustment of 100 farmers who migrated to Saskatoon, Saskatchewan and obtained urban employment. The sample was divided into three equally sized groups on the basis of adjustment, where the two groups on the extremes demonstrated good and poor adjustment. Thus Abramson's work seems to indicate a farm to urban adjustment problem for some farm residents.

In a similar fashion, Lamble (1969) investigated 100 low income farm migrants in Alberta. In this study it was found that the farmers that had non-farm work experience in their local community experienced little difficulty in adjusting to an urban setting. Farmers without non-farm work experience were more likely to demonstrate adjustment problems.

Finally, Fischer (1973) with French and American gallup pole data found migration to a larger city to be associated with malaise but migration to a smaller centre to be associated with contentment.

Thus the migration literature seems to indicate that the familiarity versus unfamiliarity distinction[1] documented by Bell, Fisher and Loomis (1978) is the causal component of migration on adjustment.

Region

Vaisanen (1975) investigated 991 working people in Finland between the ages of 15 and 60 with Zuligers Projective Test, Warteggs Drawing Test and a questionaire. No difference was found in the prevalence of psychiatric disturbance between regions.

Butcher, Pancheri and Stacca (1976) in a study in Italy with 1,220 subjects with the Minnesota Multiphasic Personality Inventory with one occupational group failed to find regional differences. These authors concluded that an earlier study (Rosen and Rizzo, 1961) that reported regional differences, was attributable to sampling differences rather than regional differences per se, indicating that demographic comparisons must be incorporated into regional studies.

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[1] This distinction is based on Helson's (1964) theory of adaptation level and Wohlwill's (1974) application of the theory of adaptation level to environmental stimulation.

Sex

The literature dealing with sex differences and adjustment is presented in Table 2.4. The studies reported here were all conducted in the United States with the exception of a study in Jerusalem and a study in England. The general tendency, from birth to adolesence is for males to be characterized by more adjustment problems than females (Eme, 1979). From adolesence through adulthood, females have a higher rate of neurosis and males have a higher rate of personality disorder.

Socioeconomic Status

Studies examining the relationship between socioeconomic status and adjustment spanning the period 1952 to 1979 are presented in Table 2.5. With the exception of Fischer (1973) and a few studies that indicate no difference, the general trend is for lower socioeconomic groups to be more poorly adjusted.

Table 2.4

Sex and Adjustment Literature

Study	Instruments and Sample	Results
Dohrenwend and Dohrenwend (1967, 1974)	Review articles.	No sex difference in rate of psychosis, manic depression or schizophrenia. But a higher neurosis rate was found among females and a higher personality disorder rate among males.
Eysenck and Eysenck (1969)	PEN Inventory; 1,423 males, 968 females; 1,400 students of both sexes and 327 housewives in England.	Women tended to be more neurotic and men tended to be more psychotic.
Pokorny and Overall	Brief Psychiatric Rating Scale and	Females were found to be

Table 2.4

Continued

Study	Instruments and Sample	Results
(1970)	psychiatric examination; 1,500 patients in Texas.	more severely disturbed than males.
Gershon and Liebowitz (1975)	Case study; 833 first admittances to a psychiatric hospital in Jerusalem.	Higher incidence of affective disorders among females than males.
Hammen and Padesky (1977)	Beck Depression Inventory; 972 male and 1,300 female college students in California.	No difference in average scores. But with a depressed sub-sample the pattern of responses was different.
Smiley (1977)	Basic Personality Inventory; 524	Sex differences in elevation of several

Table 2.4

Continued

Study	Instruments and Sample	Results
	delinquent adolescents and 816 non-delinquent adolescents in Ontario.	dimensions of adjustment for both delinquent and non-delinquent groups.
King (1978)	Review article.	Greater probability to diagnose females as depressive and males as personality disordered.

Table 2.5

Socioeconomic Status and Adjustment Literature

Study	Instruments and Sample	Results
Auld (1952)	Review article.	Lower sociecononomic groups were more poorly adjusted than middle socioeconomic groups.
Redlick, Hollingshead, Roberts, Robinson, Freedman and Myers (1953)	Case study; 1,963 psychiatric patients and a sample of controls in Conecticut.	More psychiatric patients found in lower classes but more neurotics in higher classes and more psychotics in lower classes.
Sewell and Haller (1956)	California Test of Personality; 1,462 students in grades 4 to 8.	Weak relationship between social class and adjustment when family size, age and intelligence

Table 2.5

Continued

Study	Instruments and Sample	Results
		were controlled.
Burchinal (1959)	Mental Health Analysis Test; 176 rural girls in grades 4 to 10 in Iowa.	No relationship.
Eysenck and Eysenck (1969)	PEN Inventory; 1,423 males, 968 females, 1,400 students of both sexes and 327 housewives.	Lower class people were more poorly adjusted than middle class people.
Dohrenwend and Dohrenwend (1967, 1974)	Review articles.	Inverse relationship between social class and psychopathology.

Table 2.5

Continued

Study	Instruments and Sample	Results
		No relationship between incidence of psychosis or neurosis and social class. But manic depression was associated with higher classes, schizophrenia with lower classes and personality disorder with lower classes.
Gershon and Liebowitz (1975)	Case study; 833 first admittances to a psychiatric hospital in Jerusalem.	Diagnosis of affective disorders were associated with higher social classes.

Table 2.5

Continued

Study	Instruments and Sample	Results
King (1978)	Review article.	Negative correlation between social class and psychopathology.
Rushing and Ortega (1979)	Case study; 10,000 first admittances to a state hospital in Tennessee.	Inverse relationship between socioeconomic status and mental illness only for organic and schizophrenic disorders.

Hypotheses Arising From The Literature

Personality

1. Rural people have a greater need for abasement (Dixon et. al., 1975)
2. Urban people have a greater need for achievement (Dixon et. al., 1975; Nevo, 1977).
3. Urban people have a greater need for aggression (Landis, 1945).
4. Urban people have a greater need for autonomy (Dixon et. al., 1975).
5. Urban people have a greater need for change (Dixon et. al., 1975).
6. Rural people are less cognitively complex than urban people (Weiner, 1976).
7. Urban people have a greater need for dominance (Haller and Wolff, 1965).
8. Rural people have less elevated needs (Dixon et. al., 1975; Robbins et. al., 1968).
9. Rural-urban migration influences personality (Thiessen et. al., 1969).
10. Within rural and within urban there are regional differences (Krug and Kulhavy, 1973).

11. Within rural and within urban there are sex differences (Haskin and Cattell, 1975; Maccoby and Jacklin, 1974; Nesselroade and Baltes, 1974; Schaie, 1966; Vernon, 1972).
12. Within rural and within urban there are socioeconomic differences in personality traits (Ahmed et. al., 1972; O'Rand and Ellis, 1974).

Adjustment

1. There are no differences between rural and urban people in adjustment (Burchinal et. al., 1957; Dohrenwend and Dohrenwend, 1974; Duvall and Motz, 1945; Fischer, 1973; Haller and Wolff, 1962, 1965; Hathaway et. al., 1959; Landis, 1949; Mangus, 1948; Munson, 1959; Nelsen and Storey, 1969; Nye, 1950; Osborne et. al., 1952; Sewell and Amend, 1943; Stott, 1945; Summers et. al., 1971; Vaisanen, 1975).
2. Rural-urban migration influences adjustment (Abramson, 1966, 1968; Lamble, 1969; Fischer, 1973).
3. There are no regional differences in adjustment (Butcher et. al., 1976; Vaisanen, 1975).
4. Within rural and within urban there are sex differences in adjustment (Dohrenwend and Dohrenwend, 1967, 1974; Eme, 1979; Eysenck and Eysenck, 1969; Hammen and

Padesky, 1977; King, 1978; Gershen and Liebowitz, 1975; Pokorny and Overall, 1970; Smiley, 1977).

5. Within rural and within urban lower socioeconomic strata are more poorly adjusted (Auld, 1952; Burchinal, 1959; Dohrenwend and Dohrenwend, 1967, 1974; Eysenck and Eysenck, 1969; Gershon and Liebowitz, 1975; King, 1978; Pokorny and Overall, 1970; Redlick et. al., 1953; Rushing and Ortega, 1979; Sewell and Haller, 1956).

CHAPTER THREE

EXPERIMENTAL DESIGN

Sampling

The sampling took place in schools where supervision could be maintained and standard testing conditions could be ensured. Socioeconomic status is an important variable in this analysis (cf. Chapter II) and since high school students demonstrate significantly more veridical information about socioeconomic status variables than students in prior grades (Colfax and Allen, 1967; Kayser and Summers, 1973; Simmons and Rosenberg, 1971; St. John, 1970) the sampling was restricted to high school students. High school students also have a greater amount of verbal fluency, compared to other grades, which thus minimized the testing time required and eased the burden placed on the school system by this study.

Many investigators have argued for sampling grade nine students on the basis that selectivity due to drop out would be minimized. In Alberta, however, the drop out rate does not warrant sacrificing the advantages to be gained from using high school students. In the 1974-1975 school year there were 140,030 students enrolled in grades nine to twelve from all Alberta public, separate and private schools as well as schools in the Northwest Territories (Reid, 1976).[1] Approximately 8.6% of these students dropped out during or following the 1974-1975 school year. Hence it can be seen that high school students do not constitute a biased sample.

In order to facilitate the data collection the sampling was restricted to protestant (public) school students. Some researchers might encourage sampling in both the public as well as the separate (Catholic) school systems, especially in urban areas, since in rural areas many students that would normally be educated in the separate school system are educated in the public school system.[2] But this argument confounds school system and religion. By sampling in the protestant schools the school system remains constant and also the influence of religion is minimized since religious instruction in the public (protestant) school system takes place formally outside the school system. Also, the effect of religion on personality and adjustment is beyond the scope of this study since it is likely that religious commitment (cf. Glock, 1973) rather than religion per se, is the important variable (McLain, 1978).

The sampling frame[3] was obtained from government

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[1] This is the most recent study available on student dropout in Alberta. The results in this study were not stratified by grade, region or type of school. Hence only a general picture of grades nine to twelve can be obtained.
[2] Actually some Catholic schools are public schools and the protestant schools are the separate schools where the population is predominantly Catholic.
[3] A sampling frame is the list from which the sample is selected (Cochran, 1977; Raj, 1972).

statistics on operating schools and enrollments by grade for the academic year 1977-1978 (Operational Research Branch, 1977a, 1977b). The complete list, however, was not utilized. Some schools were deleted from the list since they did not contain grade twelve students, were Catholic rather than Protestant or because they were viewed as outliers. The outliers are special schools, such as schools for the deaf, schools for the mentally retarded, private schools or adult educational schools. By limiting the sampling frame to high schools that are not special schools and contain grade twelve students a few schools were deleted from the list of schools, but in this way all schools are alike with respect to the curriculum taught and age of students. The final list contains 222 schools.

Initially, for the purpose of sampling in this study urban is defined as Calgary and Edmonton and rural is defined as all other communities. Using this definition, urban and rural contain approximately the same number of high school students since Edmonton and Calgary contain almost half of Alberta's population. Using the sampling frame, described above and population figures for the communities (Municipal Affairs, 1978; Statistics Canada, 1977) the correlation between school size and community size for the rural communities is .78. Hence school size was used as a proxy for community size in rural areas and the rural schools were stratified according to school size so that all sizes of communities would be represented.

The size variation of rural schools was sufficient to warrant the creation of three strata. Each stratum was defined so that the population of high school students in each strata would be approximately equal. By randomly sampling within these strata a good representation of the regions in the province was obtained.[1]

The first rural stratum contains 140 schools, the second rural stratum contains 38 schools and the third rural stratum contains 15 schools. The urban stratum contains 13 schools from Calgary and 10 schools from Edmonton.

In each of the strata the schools were enumerated and randomly selected, without replacement, with an APL random number generator (Gilman and Rose, 1976). The number of schools selected and the number of students selected from each school varied between strata. In the rural strata school size is significantly different between strata and in the urban strata number of schools is the constraining factor. Hence the sampling in the urban stratum was done in such a way to keep the sample size in each school as small as possible and the sampling in the rural strata was done in such a way as to achieve the desired sample size while covering a large number of schools in each stratum.

The preliminary sample of schools selected in each of the strata and the sample obtained from each school is reported in Appendix I. The geographic distribution of the sample, depicted on a map of Alberta, is presented in Figure 3.1 and the geographic distribution of the Alberta population is presented in Figure 3.2.

---

[1] The sampling design is equal allocation with unit weights rather than proportionate allocation with differential weighting.

The sample reported here was subject to the approval first of the superintendent in each school district and then to the approval of the principal in each school. Hence a much larger sample was drawn than was actually obtained, especially since this project took from 1.5 to 2.0 hours of classroom time, as determined in a pre-test. Also most high schools operate on a 90 minute period system and some high schools operate on a 45 minute period system. Hence permission for entry into a school, with a research project that requires more than one class period to complete, is a large request that met with some opposition. Hence, a large preliminary sample was obtained in order to allow for non-cooperation from the schools, and non-cooperation from students. Also with a large number of variables it is desirable to have a large sample size (e.g., Aleamoni, 1973; Morrison, 1976 p. 108).

It was not realistically possible to ensure that the selection of classrooms and students in any particular school would be unsystematic by enumerating classrooms and making random selections within each school, since obtaining students in any particular school was subject to the scheduling of activities of school classes on any particular day. Hence, the only feasible means of maintaining the representativeness of students obtained from a particular

Figure 3.1

Geographic Distribution of the Sample In Alberta

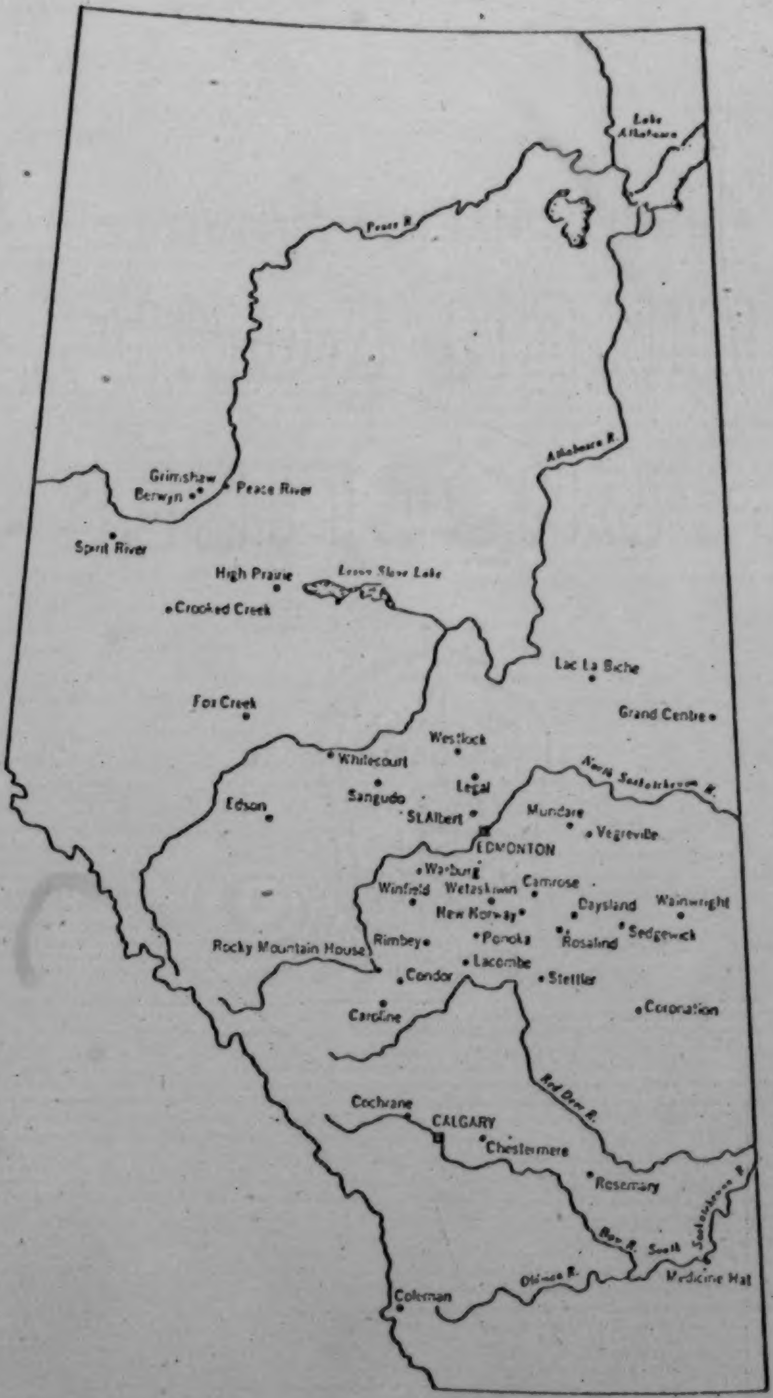
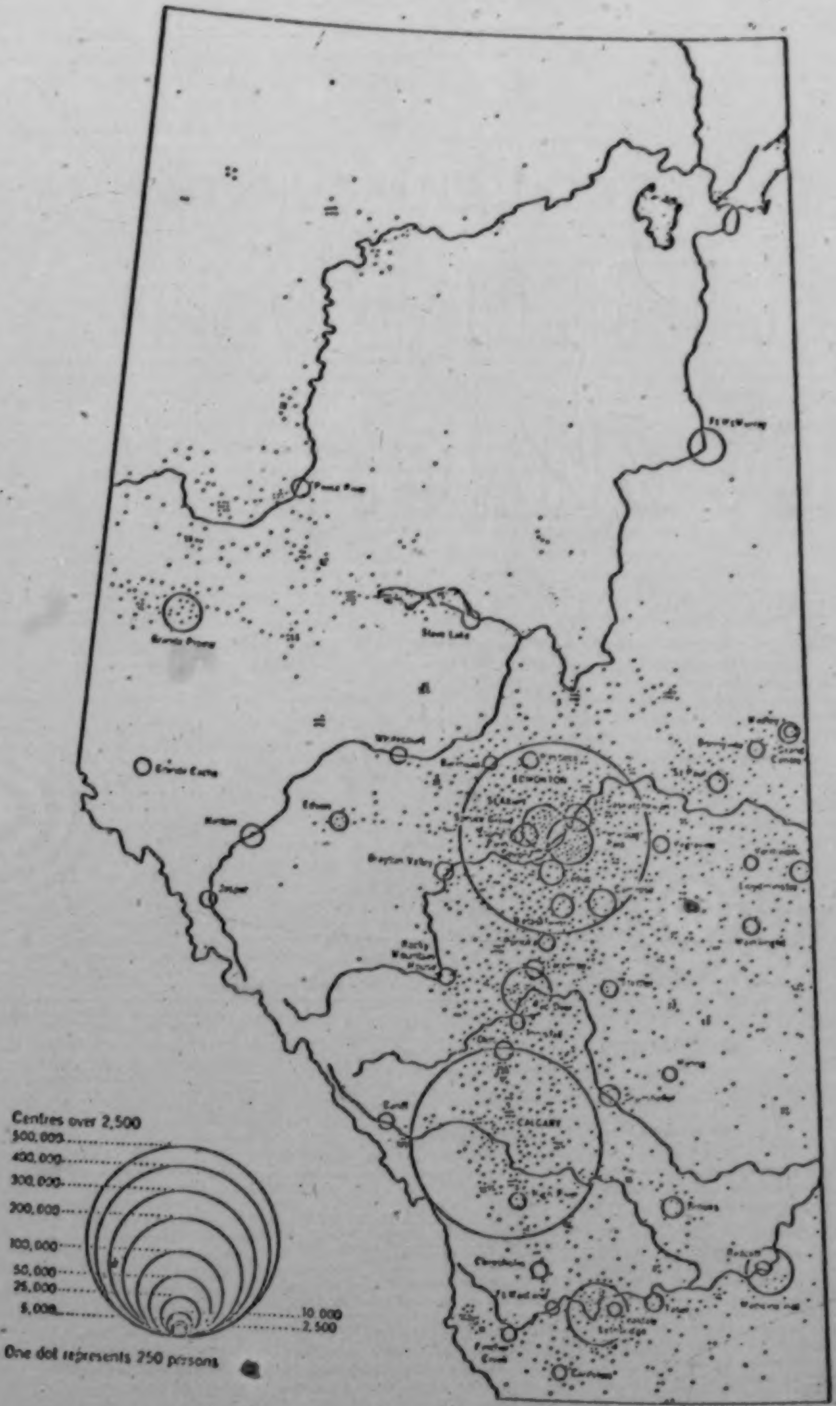

Lake Athabasca
Peace R.
Athabasca R.
Grimshaw
Berwyn
Peace River
Spirit River
High Prairie
Lesser Slave Lake
Crooked Creek
Lac La Biche
Grand Centre
Fox Creek
Westlock
Whitecourt
North Saskatchewan R.
Legal
Sangudo
Edson
St.Albert
Mundare
Vegreville
EDMONTON
Warburg
Winfield
Wetaskiwin
Camrose
Daysland
Wainwright
New Norway
Rimbey
Ponoka
Rosalind
Sedgewick
Rocky Mountain House
Lacombe
Condor
Stettler
Coronation
Caroline
Red Deer R.
Cochrane
CALGARY
Chestermere
Rosemary
Bow R.
South Saskatchewan R.
Oldman R.
Medicine Hat
Coleman

Figure 3.2

Geographic Distribution of the Alberta Population


Ft McMurray
Peace River
Grande Prairie
Slave Lake
Grande Cache
Whitecourt
EDMONTON
St Paul
Edson
Hinton
Drayton Valley
Lloydminster
Jasper
Wainwright
CALGARY
Banff
Brooks
Lethbridge
Medicine Hat
Centres over 2,500
500,000
400,000
300,000
200,000
100,000
50,000
25,000
5,000
10,000
2,500
One dot represents 250 persons

school was to urge each school principal to select classes that were heterogeneous in student content and representative of the school body.

Instruments For Measuring Personality, Adjustment and Socioeconomic Status

Personality

To measure personality the Personality Research Form-E (PRF-E) was chosen for use. All the personality traits suggested in the hypotheses arising from the literature section can be measured with the PRF-E. The PRF-E consists of twenty bi-polar content scales and two validity scales, designed to measure acquiesence and social desirability, and is suitable for use with high school populations (Jackson, 1974). The PRF-E measures a broad spectrum of personality traits in the normal range derived from Murray's (1938) comprehensive system of human needs, subsequent research evidence and psychometric advances.

Due to the elaborate rational, psychometrical, statistical construction employed the PRF-E exhibits a high degree of psychometric sophistication (Anastasi, 1976; Helmes, Reed and Jackson, 1977; Jackson, 1970, 1971, 1973, 1974; Neill and Jackson, 1970; Reed, 1976; Skinner, Jackson and Rampton, 1976; Wiggins, 1973) and the PRF-E is an exemplar of all the caveats mentioned in Chapter I for robust traits.

The PRF-E has good normative data and a host of criterion related studies have been conducted with it, (Jackson, 1974). The PRF-E content scales are Abasement, Achievement, Affiliation, Aggression, Autonomy, Change, Cognitive Structure, Defendence, Dominance, Endurance, Exhibition, Harmavoidance, Impulsivity, Nurturance, Order, Play, Sentience, Social Recognition, Succorance and Understanding. In addition there are two validity scales: Infrequency and Social Desirability.

Adjustment

To measure adjustment the Basic Personality Inventory (BPI) was chosen for use. The BPI (Jackson, 1976) was derived from the Differential Personality Inventory (DPI), Jackson and Messick (1971) and the Minnesota Multiphasic Personality Inventory (MMPI), Hathaway and McKinnley, 1967. The DPI was developed with the same rigorous psychometric procedures as the PRF-E (Jackson and Carlson, 1973; Voyce and Jackson, 1977). The MMPI, however, was developed in the late 1930s by the method of empirical criterion keying

> "Specifically, the original clinical scales have at least three major liabilities for the task for which

> they are now being employed: (a) each scale is highly heterogeneous in manifest content, and consequently it is next to impossible to attribute any unambiguous and/or content-coherent message to a particular scale score; (b) the set of scales is both substantively and structurally redundant, a problem that is severely exacerbated by items keyed on two or more scales; and (c) a sizable amount of potentially significant information from the initial item pool is not even available, either because it stems from the many items that are never scored or because sets of negatively correlated items are included in the same scale, thus effectively eliminating their effects. While these psychometric facts of life were not obvious in the late 1930s when the MMPI was being constructed, they are today. Consequently, until the MMPI item pool is replaced, it is time to move from the old clinical scales to a new set of content-coherent and structurally independent ones." Goldberg (1974).

It might be added that the original MMPI item pool is subject to a great deal of stylistic variance identified as desirability and acquiesence (cf. Rogers, 1971).

Goldberg (1974) criticized the MMPI on basic psychometric grounds and indicates that the MMPI clincal scales should be replaced with the "content-coherent" scales proposed by Wiggins (1966) until a new item pool is available. Wiggins (1966) created "content-coherent" dimensions in the MMPI by factoring the original content dimensions proposed by Hathaway and Mckinnley in 1940, and then using psychometric and rational grounds to derive content scales. Messick and Jackson (1972) with a judgmental rationale based on desirability also attempted to define dimensions in the MMPI item pool. Many other researchers have attempted to create new scales with the MMPI item pool (cf. Graham, 1978) but due to the weaknesses of the original item pool the BPI appears to be a more viable alternative.

The BPI was developed (Hoffman, Jackson and Skinner, 1974; Hoffman and Jackson, 1976) by mapping the substantive dimensions of content in the MMPI by performing a target rotation of 11 hypothesized factors representing the 28 DPI scales to the 13 orthogonalized standard clinical MMPI scales and through a joint factor analysis of the MMPI content dimensions (Wiggins, 1966) and the DPI scales. Once the substantive dimensions of content in the MMPI had been mapped with the DPI, the BPI was designed with new items to map these substantive dimensions. The BPI through rigorous psychometric construction, based on rational, statistical and psychometrical procedures, was designed to replace the MMPI.

The BPI measures eleven bi-polar dimensions of adjustment and has one critical item scale for clinical interpretation and is suitable for use with high school populations. Also there is good normative data for the BPI (Smiley, 1977). The eleven content dimensions measured by the BPI are: Hypochondriasis, Depression, Denial, Interpersonal Problems, Social Deviation, Persecutory Ideas, Anxiety, Thinking Disorder, Impulse Expression, Social Introversion and Self Depreciation. The critical item scale is Deviation.

Socioeconomic Status

In a Canadian context the choice of a socioeconomic status index is limited since there are only two[1] such scales that satisfy the requirements of being relatively recent and wide in coverage (cf. Haug, 1977): the Blishen and McRoberts scale (Blishen and McRoberts, 1976) and the Pineo and Porter scale (Pineo and Porter, 1967). The Pineo and Porter scale was derived from occupational rankings in terms of prestige and the Blishen and McRoberts scale was derived by establishing regression weights for education and income to predict the Pineo and Porter (1967) scale values.

Initially, Blishen (1958) ranked census occupations in terms of education and income, computed standard scores for education and then combined the standard scores to produce an unweighted composite. The unweighted composite was then used to rank order the occupations. The more recent regression approach appears to have more merit since a weighted composite is produced.

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[1] An alternative system is available based on the 1971 Census of Canada (Pineo, Porter and McRoberts, 1977) but this system does not constitute a scale, in an interval sense, but rather a conceptual coding system.

There is a very close degree of correspondence, however, between the Pineo and Porter (1967) and the Blishen and McRoberts (1976) scale since Blishen and McRoberts (1976) were successfully able to predict the Pineo and Porter (1967) scale values through education and income values for 85 occupations that were common to both the Blishen and McRoberts and Pineo and Porter scales. The coefficient of multiple correlation is .91. This result corresponds to an earlier study by Blishen (1967) in which the coefficient of multiple correlation for predicting 88 overlapping Pineo and Porter occupations, by the same method is .92. Hence even though the scales were derived by different methods they appear to be virtually equivalent.

The Pineo and Porter scale was chosen for use since the Blishen and McRoberts (1976) scale, through regression of education and income to predict occupational prestige, deflates the prestige value given to entrepreneurial groups, such as farmers, that generally have low education. Also the Pineo and Porter (1967) scale contains more farm categories than the Blishen and McRoberts (1976) scale thus yielding more prestige variance for an important group in this study.

Since Pineo and Porter (1967) ranked occupational titles by prestige and then organized the occupational titles alphabetically within socioeconomic categories, the socioeconomic categories were put in random order before using them in the questionnaire. An alternative procedure would have been to randomize the occupational titles, irrespective of socioeconomic category, but it is felt that the socieoconomic categories would minimize the searching process in finding the appropriate occupations.

The older age of the Pineo and Porter scale is not a problem since the Blishen and McRoberts (1976) scale was derived from the Pineo and Porter scale. It should also be noted that occupational prestige is quite stable over time (Blishen, 1967; Pineo and Porter 1967). For example, Turner (1978) found a rank order correlation of .91 between the Pineo and Porter (1967) scale values and values derived from 506 high school students in the greater Edmonton, Alberta area. The only sacrifice that is made by choosing the Pineo and Porter scale is that it is slightly less broad in coverage than the Blishen and McRoberts (1976) scale. The generality of the Pineo and Porter scale is assessed in this thesis by asking the respondents whether or not an approximation was required when choosing an occupation from the Pineo and Porter list of occupations.

An alternative system would have been to use education and income data in conjunction with the Blishen and McRoberts regression weights to predict occupational prestige. Income, however cannot be used since students' reports of parental income have proven too inaccurate to have any utility (Kayser et. al., 1973). Also, the Blishen and McRoberts (1976) regression approach to prestige with education and income, as noted previously, deflates the prestige value given to entrepreneurial groups, such as farmers, with low education.

The Pineo and Porter scale values are reported in Appendix II by socioeconomic categories. Only the mean prestige ratings are reported. The variances are not reported, since it has been found that about half of the variance in prestige ratings is due to individual idiosyncracies in inter-occupational variance, which is relatively unimportant. What is important is that there is a high degree of group consensus on occupational rankings that has been replicated across several groups (Burshtyn, 1968; Goyder and Pineo, 1977; Jencks, 1972, pg. 199).

In Appendix III the Pineo and Porter (1967) list of occupations is placed in ascending order of occupational prestige for the purpose of delineating occupational classes. The socioeconomic groups presented in Appendix II constitute a gradient in terms of group centroids. These groups could not be used to derive social classes since the socioeconomic categories overlap in terms of occupational prestige distributions. Occupational classes are derived by a method suggested by Blishen in his writings (Blishen, 1958, 1967, 1973; Blishen and McRoberts, 1976). Blishen suggested that classes can be derived by either taking deciles of occupations rank ordered on prestige or by using intervals of ten in the prestige scale distribution as cutting points. Both methods, however, yield equivalent results (cf. Blishen, 1967).

The method of intervals of ten in the prestige scale is used to derive classes, with a minor modification. At the two extremes of the distribution of prestige scores each class includes what would ordinarily be two classes using this system. The reason for doing this is to maintain relatively large samples from each of the rural-urban strata in each of the classes and to limit the number of classes to five which is quite standard in much of the literature. The cutting points for the classes are: I < 30.0, II ≥ 30.0 and < 40.0, III ≥ 40.0 and < 50.0, IV ≥ 50.0 and < 60.0, V ≥ 60.0.

Demographic Information

The age, ethnic origin, family size, grade in school, type of high school program enrolled in and career plans of each student were obtained for descriptive purposes. So that sex differences would not obscure the results the sex of each respondent was obtained. In order to eliminate the effects of migration on the results, the length of residence in a given area was obtained. Also if a move occured, the time and type of move was ascertained. Residence locations were categorized as rural farm, rural non-farm and urban. It was determined whether or not the students resided at home with their parents or lived elsewhere. Parental education was obtained for descriptive purposes and parental occupation was obtained from the students to ascertain the socioeconomic origin of the students.

The identity of each respondent remains anonymous. But all students were required to put their name on the answer sheet or a suitable identification number such as the last four digits of their phone number so that students requiring more than one testing period could have their answer sheets returned to them. At the same time the students were instructed to put their identification on the answer sheet the students were informed, that they would be allowed to erase their names upon completion of the testing to maintain anonymity.

Administration of Testing

All testing was done in person by the author except at two schools where prior arrangements were made. The students were told that they would be completing some psychological tests and answering some background questions that would be used for the author's Master of Science thesis. The students were informed that this would be an opportunity to gain some experience with psychological tests and to become a part of research. At the completion of the testing the students were informed of the purpose of the project, a discussion period followed, and they were informed that a report would be made available to their school upon completion of the thesis.

The questionnaire and answer sheet are presented in Appendix IV. The answer sheet is an IBM machine readable answer sheet designed by the author to minimize the task of coding the data. The PRF-E and BPI have not been presented for copyright reasons.

CHAPTER FOUR

THE SAMPLE

Subjects Retained For Analysis

The initial sample consists of 1,596 subjects but some subjects (discussed below) are eliminated due to nonpurposeful or careless responding or due to missing data. In a classroom situation, where the testing took place, it was possible to observe the subjects during the testing. A few subjects obviously did not read the questions but just filled in the answer sheet. These subjects were approached and informed that the testing was voluntary. In all cases, however, these subjects indicated that they would like to finish the testing. They were then permitted to continue but later it was noticed that they were back to their random responding.

In a classroom situation where students are not allowed to leave until the end of the class period, some subjects with a poor test taking attitude will conform to the demands of the testing, due to the nature of the classroom environment, to the extent that the answer sheet will be filled in randomly. Where random responding had been detected visually by the author these answer sheets were labeled upon completion and examined later. A visual examination yielded no bizarre responses or missing data.

However, on the basis of Infrequency scale scores, discussed below, the random responding was detected in every instance. (These questionnaires were thus not scored or included in the initial sample.)

Nonpurposeful responding is determined on the basis of the PRF-E Infrequency scale. Jackson (1974) recommends that a score ≥ 4 on the Infrequency scale as a cutoff for the presence of careless or non-purposeful responding and this was sufficient to detect the respondents that had blatantly evidenced random responding and had their questionnaires labeled as such. Jackson (1974) also recommends that when scoring close attention must be paid to blank responses. When the PRF-E and BPI were scored multiple marks were scored as blanks.

A combination of the Infrequency score as well as blank responses is used as a criterion for retaining subjects. Subjects with too much missing data would have artificially deflated scale scores and subjects with elevated Infrequency scores would contain meaningless responses. The distribution of the PRF-E Infrequency scores is presented in Table 4.1.[1]

In a perfectly random responding situation the expected value of the Infrequency scale score would be 8. Thus a score of 4 as a cutoff for random responding is quite stringent, however, due to the great demand of this testing

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[1] Note: the maximum score on the Infrequency scale, as on all PRF-E scales is 16 and since there are 22 PRF-E scales the maximum number of blanks is 352. Since the BPI contains 12 twenty item scales the maximum number of blanks for the BPI is 240.

Table 4.1

Distribution of PRF-E Infrequency Scale Scores

n = 1,596

Infrequency Score	Frequency	Per Cent	Cummulative Per Cent
0	883	55	55
1	430	27	82
2	156	10	92
3	43	3	95
4	25	2	96
5	15	1	97
6	18	1	98
7	8	1	99
8	12	1	100
9	4	0	100
10	1	0	100
16	1	0	100

it seemed appropriate to examine the distribution of Infrequency scale scores to determine whether or not a more stringent criterion should be applied. Looking at Table 4.1 it can be seen that a natural break occurs after a score of 3. This can be confirmed with the logic of Cattell's scree test (Cattell, 1966; Cattell and Vogelman, 1977) whereby the mountain is separated from the rubble or scree. After a score of 3 the slope becomes quite constant indicating a natural break at 3. Thus all subjects with an Infrequency scale score greater than 3 were eliminated from the analysis which meant that 5% (84) of the subjects were eliminated. Thus after the Infrequency analysis 1,512 subjects are retained.

The blank distributions for the PRF-E and BPI after eliminating 5% of the subjects due to nonpurposeful responding are presented in Table 4.2 and 4.3 respectively. An examination of Table 4.2 and 4.3 indicates that by eliminating subjects with more than three blanks 99% (1494) of the subjects are retained, after the Infrequency analysis for the PRF-E analysis and 98% (1485) of the subjects are retained after the Infrequency analysis for the BPI analysis. A further check was then done to ensure that for either the PRF-E or BPI that none of the people that had blanks, had more than one blank on any one scale. This required the elimination of one more subject for the PRF-E analysis and the elimination of four more subjects for the BPI analysis. Thus the sample after the Infrequency and

Table 4.2

PRF-E Blank Distribution

n = 1,512

Blank Count	Frequency	Per Cent	Cummulative Per Cent
0	1348	89	89
1	105	7	96
2	26	2	98
3	15	1	99
4	4	0	100
5	2	0	100
6	6	0	100
7	1	0	100
10	1	0	100
16	2	0	100
41	1	0	100
117	1	0	100

Table 4.3

BPI Blank Distribution

n = 1,512

Blank Count	Frequency	Per Cent	Cummulative Per Cent
0	1384	92	92
1	74	5	96
2	19	1	98
3	8	1	98
4	4	0	98
5	1	0	99
7	2	0	99
9	1	0	99
13	1	0	99
46	2	0	99
66	1	0	99
84	1	0	99
96	2	0	99
121	1	0	99
122	1	0	99
132	1	0	99
161	1	0	99

Table 4.3

Continued

Blank Count	Frequency	Per Cent	Cummulative Per Cent
173	1	0	100
176	1	0	100
191	1	0	100
203	1	0	100
237	1	0	100
240	3	0	100

blank analysis for the PRF-E consists of 1,493 subjects and the sample for the BPI consists of 1,481 subjects. Lastly, the age and grade distributions of the subjects were inspected for the BPI and PRF-E samples. For the BPI six subjects 14 years of age, four subjects between 21 and 23 years of age and twelve subjects in grade 10 were eliminated. For the PRF-E six subjects 14 years of age, four subjects between 21 and 23 years of age and fifteen subjects in grade 10 were eliminated.

At this point, the sample for the PRF-E contains 1,468 subjects and the sample for the BPI contains 1,459 subjects. Since the number of subjects is quite similar for both the PRF-E and BPI samples a cross tabulation indicates that 1,445 subjects are common to both samples. Since the samples overlap to such a great extent, the sample of 1,445 common subjects is used for both the PRF-E and BPI analyses.

Post Stratification

Of the 1,445 subjects retained for analysis 506 subjects lived on farms and 53 subjects lived on acreages. Since the number of subjects living on acreages is insufficient to warrant the creation of a separate category, acreage residents are treated as belonging to rural non-farm. Of the remaining subjects, 398 lived in communities greater than 25,000 population and 487 subjects lived in communities less than 11,000 population. The cutoff for rural non-farm and urban is judgemental but there is a gap in the distribution of population between 11,000 and 25,000 and the communities up to 11,000 population are primarily agrarian based communities. Also in order to maintain large groups for the rural non-farm and urban categories 25,000 population is used as a cutoff for urban and 11,000 population is used as a cutoff for rural non-farm. One subject was not classifiable as to residence and consequently the final sample consists of 1,444 subjects.

Sample Description

In the following pages several tables are presented to describe the sample utilizing the post stratification categories farm, rural non-farm which includes acreage residents and communities up to 11,000 population, and urban which includes communities exceeding 25,000 population.

In Table 4.4 the sex, age and grade distributions of the sample are presented. The distribution of males and females in the farm, rural non-farm and urban strata are equivalent with females comprising about 60% of the sample in each of the strata. The age ranges in each of the strata are equivalent with the means in the strata ranging from 16.5 to 16.9 years. Grade distributions in the sample, however, are not equivalent. In the farm and rural non-farm strata 61% of the the sample is in grade twelve, but in the urban stratum 65% of the sample is in grade eleven.

The high school programs that the students in each of the strata are enrolled in and career plans after graduation are presented in Table 4.5. The distribution of each of the strata in the four different high school programs are equivalent. It should follow that the career plans after high school graduation in each of the strata should not differ. The strata do differ however, on two dimensions. There is an increasing trend from farm to urban to plan on attending university and there is a decreasing trend from farm to urban to seek employment after graduation. Thus occupational aspirations presented later in Table 4.11 should increase from farm to urban.

In Table 4.6 the number of children in each family is presented and in Table 4.7 the birth order of the respondents as indicated by number of older siblings is presented. The average number of children in each of the strata is almost equivalent with a small tendency for family size to decrease from farm to urban. The birth order of the respondents in each of the strata decreases slightly from farm to urban but seemed attributable to the slightly smaller family sizes that occur in the same direction.

In Table 4.8 parental characteristics are presented. The majority of the sample in each of the strata lived with both parents. The remainder lived with one parent, guardians or on their own. In the majority of cases the father is the household head. Although there is a slight tendency, moving

Table 4.4

Sex, Age and Grade Of Respondents

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Sex	%	%	%	%
Male	45	41	38	42
Female	55	59	62	58
Age	%	%	%	%
15	2	3	7	4
16	33	31	51	37
17	47	45	32	42
18	16	20	9	16
19	0	2	1	1
	Mean	Mean	Mean	Mean
	16.8	16.9	16.5	16.7
Grade	%	%	%	%
Eleven	39	39	65	46
Twelve	61	61	35	54

Table 4.5

High School Program and Career Plans Of Respondents

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
High School Program	%	%	%	%
Diploma (Business)	11	13	9	11
Diploma (General)	38	37	39	38
Matriculation	47	43	47	46
Vocational	4	7	5	6
Career Plans	%	%	%	%
Seek Employment	36	29	22	29
Technical/Vocational Training	29	32	26	29
University	20	25	34	26
Other	15	15	19	16

Table 4.6

Number of Children Per Family For the Sample

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Number of Children	%	%	%	%
One	11	11	17	12
Two	20	27	33	26
Three	26	26	28	27
Four	17	15	12	15
Five	11	9	5	9
Six	6	5	2	5
Seven	4	3	1	3
Eight	4	1	1	2
Nine	2	1	1	1
Ten	0	1	1	1
Eleven	0	1	0	0
	Mean	Mean	Mean	Mean
	3.6	3.4	2.8	3.3

Table 4.7

Birth Order By Number of Older Siblings For the Sample

	n=506	n=540	n=398	n=1,444
	Rural	Rural		
	Farm	Non-farm	Urban	Total
Number of Siblings	%	%	%	%
Zero	26	27	32	28
One	22	24	26	24
Two	22	19	21	21
Three	12	13	11	12
Four	8	8	5	7
Five	4	4	3	4
Six	3	2	1	2
Seven	2	0	0	1
Eight	4	1	1	1
Nine	1	1	0	0
Ten	1	0	0	0
	Mean	Mean	Mean	Mean
	2.0	1.9	1.5	1.8

Table 4.8

Parental Characteristics For the Sample

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Family Unit	%	%	%	%
Two Parents	95	92	92	93
One Parent	2	3	5	3
Live With Guardians	2	2	2	2
Live On Own	1	2	2	2
Household Head	%	%	%	%
Father	89	85	80	85
Mother	6	10	16	10
Supported By Relatives	1	1	1	1
Other	3	3	4	3

Table 4.8

Continued

Household Head of Single Families	Rural Farm %	Rural Non-farm %	Urban %	Total %
Father	63	25	14	29
Mother	37	75	86	71

from farm to urban, for the mother to more frequently be the household head. Part of this trend is due to the fact that in the single parent families there is an increasing trend from farm to urban for the mother to be head of the household.

In Table 4.9 the education of the household head is presented. Salient features of this table are that a large number of the farm sector has an education of grade nine or less and at the higher educational levels there is a moderate tendency for educational level to increase from farm to urban.

In Table 4.10 the education of the other parent is presented. The distributions indicate that the other parent, on the average, has obtained more education than the household head and that there is a slight tendency for education to increase from farm to urban.

In Table 4.11 the average occupational prestige of the household head, other parent and aspiration of the student are presented. There is a moderate tendency for prestige ranking to increse from farm to urban for household head, other parent and aspiration. It is interesting to note that the occupational aspiration is of highest prestige, followed by household head and lastly other parent. In Chapter V when analysis of variance is discussed as a method of analysis, student occupational aspirations, are evaluated as an example with the same analysis of variance design constructed for evaluation of personality and adjustment

Table 4.9

Education of Household Head For the Sample

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Education	%	%	%	%
Grade 9 or Less	48	30	17	33
Less Than Grade 12	26	27	25	26
High School Graduation	11	16	17	14
Some Technical/ Vocational	4	5	7	5
Technical/Vocational Graduation	5	8	9	7
Some University	3	3	7	4
University Graduation	2	7	9	6
More Than One University Degree	1	4	9	4

Table 4.10

Education of Other Parent For the Sample

	n=506	n=540	n=398	n=1,444
	Rural	Rural		
	Farm	Non-farm	Urban	Total
Education	%	%	%	%
Grade 9 or Less	26	18	14	20
Less Than Grade 12	34	32	22	30
High School Graduation	21	27	28	25
Some Technical/ Vocational	4	4	6	4
Technical/Vocational Graduation	3	4	6	4
Some University	4	3	6	4
University Graduation	5	6	8	6
More Than One University Degree	0	1	2	1

Table 4.11

Occupational Prestige of Household Head, Other Parent and Aspiration of Respondent

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Occupational Prestige	Mean	Mean	Mean	Mean
Household Head	43.3	45.6	49.2	45.8
Other Parent	39.8	39.9	42.9	40.8
Aspiration	51.6	53.2	58.2	54.0

differences.

In Table 4.12 the classification hit rate of the Pineo and Porter (1967) list of occupations is presented. For the household head exact occupations are found most often in the farm stratum, due to the large number of full time farmers in this stratum which are for the most part correctly classified. In the rural non-farm and urban strata the classification hit rate is equivalent with exact occupations being found only about 40% of the time. For the other parent the classification hit rate is somewhat better than for the household head but is better as well in the farm stratum. For occupational aspiration the classification hit rate is equivalent in all three strata with a little better than a 50% hit rate. Part of the reason for the better hit rate for aspirations may have been due to the limited knowledge of many high school students about the occupational structure, and the list of occupations may have appeared satisfactory in coverage.

In Table 4.13 the distribution within occupational classes for each stratum is presented. Farming occupations, except for hog farmers and part time farmers, fall in class III (cf. Appendix III). The students were instructed that when more than one work role was performed that they were to choose the occupation that the most time is devoted to. Hence few students chose the category part time farmer. It should be noted that there is quite a bit of occupational variance for farm residents which indicates the importance of off farm work for many farm residents which is consistent with other research (Bollman, 1979; Jensen, 1978). For each stratum the complete range of classes is covered.

In Table 4.14 the distribution of education within classes is presented to check the accuracy of the class system. As one moves from classes I to V the educational level attained by the respondents should increase. An inspection of Table 4.14 indicates that this is true, the higher the class the higher the educational attainment.

In Table 4.15 the years since the last moved occurred is presented. The important point to glean from this table is that farm residents move significantly less frequently than rural non-farm or rural residents.

In Table 4.16 the size of the community resided in prior to moving is presented and in Table 4.17 the type of move based on the size of the former community and the size of the present community is presented. Tables 4.15 to 4.17 are used to construct a variable for migration, discussed in Chapter V.

In Tables 4.18 and 4.19 the ethnic origin and religion of the respondents are presented. When reporting their ethnic origin the respondents were given the option of choosing the category Canadian (i.e., self-identification). An inspection of Table 4.18 indicates that a significant portion of each strata reported their ethnic origin as Canadian. The urban stratum, however, had a greater tendency than the other strata to choose the category Canadian. Since

Table 4.12

Classification Hit Rate of Pineo and Porter (1967) Occupational Prestige Scale For Household Head, Other Parent and Occupational Aspiration

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Classification	%	%	%	%
Household Head				
Exact	63	38	36	46
Approximate	37	62	64	54
Other Parent				
Exact	59	47	45	49
Approximate	41	53	55	51
Aspiration				
Exact	54	55	52	54
Approximate	46	45	48	46

Table 4.13

Distributional of Occupational Classes For the Household Head

	n=506	n=540	n=398	n=1,444
	Rural	Rural		
	Farm	Non-farm	Urban	Total
Class	%	%	%	%
I	7	15	12	12
II	13	22	19	18
III	65	20	18	35
IV	10	25	26	20
V	5	18	25	15

Table 4.14

Distributional of Education Within Occupational Classes For the Household Head For the Full Sample

	n=168	n=262	n=505	n=284	n=215
	I	II	III	IV	V
Education	%	%	%	%	%
Grade 9 or Less	48	34	42	26	7
Less Than Grade 12	34	29	28	24	14
High School Graduation	10	17	14	16	16
Some Technical/ Vocational	2	5	6	5	6
Technical/Vocational Graduation	4	8	6	10	9
Some University	0	3	2	9	6
University Graduation	1	3	1	5	24
More Than One University Degree	1	0	1	5	19

Table 4.15

Number of Years Since Last Move For the Sample

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Years	%	%	%	%
Never Moved	51	22	25	32
One	7	12	16	11
Two	3	10	6	7
Three	5	6	7	6
Four	5	8	5	6
Five	4	6	5	5
Six	4	7	7	6
Eight	4	9	10	8
Ten	4	5	5	5
More Than Ten	15	15	14	15

Table 4.16

Population of Community Prior to Last Migration

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Size	%	%	%	%
Never Moved	49	22	24	33
Acreage or Farm	7	13	16	12
1,000 or less	3	10	6	10
2,500 or less	5	6	8	6
5,000 or less	5	8	5	7
10,000 or less	4	6	5	5
15,000 or less	4	7	7	2
25,000 or less	4	9	10	3
50,000 or less	4	6	5	4
50,000 or more	15	15	15	19

Table 4.17

Type of Migration For the Respondents

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Type	%	%	%	%
Never Moved	49	23	26	33
Acreage or Farm to Farm	18			6
Acreage or Farm to Rural Non-Farm		12		5
Acreage or Farm to Urban			4	1
Rural Non-Farm to Farm	20			7
Rural Non-Farm to Rural Non-Farm		39		15
Rural Non-Farm to Urban			26	7
Urban to Farm	13			4
Urban to Rural Non-Farm		26		10
Urban to Urban			44	12

Statistics Canada did not give the option Canadian in the 1971 census (Statistics Canada, 1973a), the last year in which ethnic origin was obtained, the distribution cannot be compared against population values. Between the strata, however, no serious discrepancies occur, although other than Canadian, there are moderate differences with English, German and Ukrainian.

Table 4.19, religious denomination, is comparable to the population values reported by Statistics Canada (1973b). Comparable strata were generated by using greater than 10,000 population as a cutoff for urban, less than 10,000 population as rural non-farm and, of course, farm as farm. Since the population values are eight years old the population strata correspond to the sample strata even though 11,000 is used as a sample cutoff for urban and 10,000 is used as a population cutoff for urban. Resemblance between the population and sample strata is assessed by comparing the percentage distributions with respect to shape with the product moment correlation coefficient. The correlations between the population and corresponding sample strata are .93 for farm, .89 for rural non-farm and .76 for urban. Thus in terms of religious denominations, the sample represents the population quite well. The poorer representativeness of the urban stratum is largely attributable to the omission of Roman Catholic schools from the sampling frame since these schools are more prevalent in urban areas. Also many Roman Catholics attend protestant schools in rural areas where there are not any Roman Catholic schools. In terms of the similarity between strata in religious denominations the population strata correlate between .95 and .97 indicating a high degree of correspondence. The sample strata correlate between .76 and .96, corresponding to the correlations between the sample and population strata with the least degree of correspondence with the urban stratum.

Demographic Equivalence of the Strata

The demographic characteristics presented for the rural-urban strata in Tables 4.4 to 4.19 generally indicate that the rural-urban strata are composed of demographically matched people with respect to sex, age, high school program enrolled in, family size, birth order, family composition, socioeconomic origin (and thus social class of major income earner and other parent), ethnic origin and religion.

There is, however, a slight tendency for family size to increase from farm to urban and for birth order to change by a corresponding marginal amount. There is a slight tendency for two parent families to decline from farm to urban, for the father to be more often the major income earner increasing from urban to farm, and similarly for the father to be more often the head of the household, increasing from urban to farm, in single parent families. Also there is a moderate tendency for socioeconomic status, social class and

Table 4.18

Ethnic Origin of the Respondents

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Ethnic Group	%	%	%	%
American	3	2	1	2
Australian	0	0	0	0
Belgian	1	1	1	1
Byelorussian	0	1	1	0
Canadian	13	15	23	16
Chinese	0	1	2	1
Croatian	0	0	0	0
Czech	1	1	0	1
Danish	2	2	2	2
English	9	8	15	10
Eskimo	0	0	0	0
Estonian	0	0	0	0
Finnish	0	0	0	0
French	5	6	3	5
German	23	16	12	17
Greek	0	0	0	0
Hungarian	2	1	1	1

Table 4.18

Continued

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Ethnic Group	%	%	%	%
Icelandic	0	1	1	0
Indo-Pakistan	0	0	1	0
Irish	6	9	6	7
Italian	1	2	1	1
Japanese	0	0	1	0
Jewish	0	0	0	0
Latvian	0	0	0	0
Lithuanian	0	0	0	0
Native Indian (band)	0	0	0	0
Native Indian (non-band)	0	0	0	0
Negro	0	0	1	0
Netherlands	3	3	2	2
Norweigian	4	2	1	2
Other Asiatic	0	0	0	0
Other British Isles	0	0	0	0

Table 4.18

Continued

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Ethnic Group	%	%	%	%
Other East Indian	0	0	0	0
Other European	0	0	0	0
Other Yugoslavian	0	0	0	0
Polish	3	3	2	3
Portuguese	0	0	0	0
Romanian	0	1	0	1
Russian	1	1	1	1
Scottish	7	8	8	8
Serbian	0	0	0	0
Slovak	0	0	0	0
Spannish	0	0	0	0
Swedish	3	3	2	3
Syrian-Lebanese	0	0	0	0
Ukrainian	12	10	7	10
Welsh	1	1	3	1
West Indian	0	0	0	0
Yugoslavian	0	0	1	0

Table 4.18

Continued

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Ethnic Group	%	%	%	%
Other	1	1	2	1

Table 4.19

Religious Denomination of the Respondents

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Religious Group	%	%	%	%
Adventist	0	0	0	0
Anglican	5	7	13	8
Baptist	6	3	5	5
Brethren In Christ	0	0	0	0
Budhist	0	0	0	0
Christian and Missionary Alliance	2	2	2	2
Christian Reformed	2	2	2	2
Christian Science	0	0	0	0
Church of Nazerene	1	1	1	1
Church of Christ Disciples	1	0	1	0
Confucian	0	0	0	0
Doukhobor	0	1	0	0
Evangelical United Brethren	1	1	1	1
Free Methodist	0	0	0	0

Table 4.19

Continued

	n=506 Rural Farm	n=540 Rural Non-farm	n=398 Urban	n=1,444 Total
Religious Group	%	%	%	%
Greek Orthodox	2	2	1	2
Hutterite	0	0	0	0
Jehova's Witness	1	1	1	1
Jewish	0	0	1	0
Lutheran	7	6	9	7
Mennonite	2	0	0	1
Mormon	1	1	1	1
No Religion	11	8	17	12
Pentecostal	2	1	2	2
Plymouth Brethren	0	0	0	0
Presbyterian	2	3	6	4
Roman Catholic	22	32	9	22
Salvation Army	0	0	0	0
Ukrainian Catholic	4	2	0	2
Unitarian	0	0	1	0
United Church	22	22	19	21
Other	6	4	9	6

education, for major income earner and other parent, to increase from farm to urban. With respect to ethnic origin there is a slight tendency going from farm to urban to choose the category Canadian and for moderate differences to appear for the categories German, Ukrainian and English. With respect to religious denomination Roman Catholics are somewhat over represented in the farm and rural non-farm strata, due to the sampling frame, and for urban people to more frequently report the category no religion.

The strata differ significantly with respect to occupational aspiration, career plans, grade and migration. Career plans and aspiration, in terms of prestige, increase from farm to urban. The farm stratum are significantly less mobile than the other strata and the urban stratum contains significantly more grade eleven students, whereas the other strata contain significantly more grade twelves.

A sub-aim of this thesis is to evaluate the demographic equivalence of the strata and to evaluate the equivalence of the strata to the population so that results attributed to rural-urban could not be spuriously due to sampling or demographic differences. The major demographic differences between the strata that could effect the analysis are migration, and grade. The foregoing discussion generally indicates that the strata are equivalent and where the strata are not equivalent these factors are incorporated into the experimental design, with one exception: grade. Thus even though grade, especially when limited to grade eleven and grade twelve, has not been demonstrated to be a major source of variance in either personality (cf. Jackson, 1974) or adjustment (cf. Smiley, 1977); grade is incorporated into the evaluation of differences among variables to minimize the chance of obtaining spurious effects due to grade that might be erroneously attributed as a rural-urban effect.

Sampling Adequacy

There are essentially two methods of comparing the sample to the population: (1) by comparing the geographic distribution of the sample to the population and (2) by comparing the demographic composition of the sample to the demographic composition of the population. The first method is primarily concerned with regional representation and is discerned by a logical comparison of Figure 3.1 and Figure 3.2, namely the geographic distribution of the sample and the geographic distribution of the population.

An inspection of these figures indicates that the sample generally coincides with the distribution of the population. The second method of evaluating sampling adequacy, comparing the sample and the population on demographic characteristics is accomplished through a comparison of the religious distribution of the sample strata and corresponding population strata. The evaluation of sample-population congruence on the basis of religious distributions must be considered a lower bound estimate, since it is known from the sampling design that Catholics are under represented in the urban areas. Thus the statistics reported in the discussion of Table 4.19, although generally quite good are conservative estimates thus indicating that the population is represented reasonably well by the sample since the correlations between the sample and corresponding population strata range between .76 and .93, with the poorest degree of resemblance for the urban stratum, as expected, due to the sampling frame. Other demographic characteristics could be used for an evaluation of sample-population equivalence but the other demographic features are not directly comparable to population values. Since the sample-population equivalence is evaluated through both geographic representation as well as through a comparison of the religious distributions of the sample and the population, the conclusion of adequate sampling of the population seems to be warranted.

CHAPTER FIVE

ANALYSIS

Introduction

The urban stratrum differs most significantly from the other strata on grade distributions. Consequently, grade is included as a variable in the analysis. The variables and their levels in the design are obvious, i.e., sex has two levels, socioeconomic status has five levels (cf. Chapter III - Experimental Design), residence has three levels (cf. Chapter IV - The Sample) and grade has two levels (cf. Chapter IV - The Sample). Logically, migration has two components: time and type of move. Although, only type of move (similar versus dis-similar) has received attention in the literature (Bell, Fisher and Loomis, 1978; Castellano, 1976; Fischer, 1973; Thiessen et. al., 1969).

Time and type of move were categorized by using the familiar-unfamiliar distinction documented by Bell et. al. (1978). Thus the factor for migration incorporates the information from Tables 4.15 and 4.16, in the last chapter, to build a factor in which type of move is categorized as: (1) never moved, (2) moved to a similar type of residence location (i.e., farm to farm, rural non-farm to rural non-farm and urban to urban) and (3) moved to a different type of residence location (i.e., farm to rural non-farm,

farm to urban, rural non-farm to farm, rural non-farm to urban, urban to farm, urban to rural non-farm). Within the levels moved to a similar location and moved to a different location, a further distinction is made with respect to time consistent with the familiar-unfamiliar distinction. It is felt that with high school students two years would be a sufficient amount of time for the unfamiliar to become familiar and thus two years or less is used as a cutting point, in terms of time, for familiarity. The factor for migration consequently includes five levels forming a gradient in terms of the familiar-unfamiliar distinction documented by Bell et. al. (1978).

The first level for migration includes people who had never moved. The second level includes people who had moved to a similar residence location but had done so three or more years ago. Level three includes people who had moved to a different residence location three or more years ago. Level four includes people who had moved to a similar residence location but had done so two or less years ago. Lastly, level five includes people who had moved to a different type of residence location but had done so two or less years ago. Thus the gradient for migration, from familiar to unfamiliar, consists of never moved, moved to a similar setting three or more years ago, moved to a different setting three or more years ago, moved to a similar setting two or less years ago, and moved to a different setting two or less years ago.

The relationships among the factors for the analysis are presented in Table 5.1 in a correlation matrix and then with the inverse of the correlation matrix. In this way the correlation matrix can be inspected for bivariate redundancy and the inverse of the correlation matrix can be used to calculate multivariate redundancy. The diagonal elements of the inverse of the correlation matrix yield the squared multiple correlation for predicting variable k from the k-1 remaining elements, by subtacting the reciprocal of diagonal element k from unity.

As can be seen from an examination of the correlation matrix the factors are relatively independent, taken two at a time, since the largest zero order correlation, in absolute value is .20 (r^2 = .04). The squared multiple correlations for predicting each of the variables: grade, migration, residence, sex and social class, from the k-1 remaining variables are: .10, .06, .10, .03 and .03. Thus, the factors are not subject to linear dependence or collinearity, in either a bivariate or multivariate sense. That is, the effects attributable to any given factor, are relatively independent of the remaining factors, unless, of course, a multipicative relationship is discerned where two factors combine multiplicatively to produce an effect.

Table 5.1

Relations Among Explanatory Variables

Correlation Matrix

	Grade	Migration	Residence	Sex	Social Class
Grade	1.00	.15	-.20	.14	.05
Migration		1.00	.15	.01	.03
Residence			1.00	.05	.14
Sex				1.00	-.04
Social Class					1.00

Inverse of Correlation Matrix

	Grade	Migration	Residence	Sex	Social Class
Grade	1.11	-.20	.28	-.17	-.10
Migration		1.06	-.20	.03	.01
Residence			1.11	-.10	-.17
Sex				1.03	.06
Social Class					1.03

Bivariate and Canonical Correlations

The analysis commences in Chapter VI by examining bivariate correlations of residence, sex, social class, migration and grade with the PRF and BPI variable sets. Then the relationship between residence, sex, social class, migration and grade is summarized and articulated through canonical correlation analysis (Hotelling, 1936) so that the relationships can be presented simultaneously.

Canonical analysis essentially yields the same information as multivariate analysis of variance except that covariances among variables are the focus of attention rather than mean differences.[1] Since canonical variates are somewhat difficult to interpret as are multiple regression equations (cf. Mulaik, 1972) in that these techniques produce composites such that the relationship between the predictor and criterion sets is maximized. But the weights for the formation of linear composites that are maximally related are poor indicators of the explanatory importance of the variables that are used to derive linear composites. Thus it is necessary to compute canonical loadings (i.e., RB where R is the within set correlation matrix and B is the matrix of canonical weights), analogous to factor loadings, which are correlations between the canonical variates and the variables used to derive them (Timm, 1975).

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[1] Actually, with an appropriate design matrix, constructed to evaluate mean differences canonical analysis yields the same results as multivariate analysis of variance (cf. Harris, 1975b; Wiersma and Hall, 1973).

To further indicate the importance of the canonical correlations a redundancy index (Stewart and Love, 1968; Gleason, 1976) is computed by multiplying the sum of the squared canonical loadings (variance accounted for by the canonical variate) divided by the number of variables (proportion of variance accounted for by the canonical variate) by the squared canonical correlation (the eigen value from the canonical equation). The redundancy index indicates the redundancy in one set (the criterion set - personality or adjustment) given the other set (the predictor set - grade, migration, residence, sex and socioeconomic status) and thus indicates the strength of the relationship between the two sets which cannot be readily deduced from the magnitude of the canonical correlations alone, since it is possible to have relatively large canonical correlations but the canonical variates may have extracted very little of the variance in either the predictor and/or the criterion set.

The number of canonical correlations to retain for the BPI and PRF-E canonical analyses is determined by testing the significance of the characteristic roots (canonical r^2), derived from the canonical equation, with Roy's largest characteristic root distribution, a somewhat more conservative criterion than Wilk's Lambda, when more than one root is retained (cf. Harris, 1975b). Additionally, the criterion of redundancy of the predictor set with the criterion set (cf. Stewart and Love, 1968) greater than zero (when rounded to two significant decimal places), is used. With a large sample size it is possible to retain canonical correlations where the redundancy in the criterion set, given the predictor set is essentially zero even though the canonical r^2 is significantly different from zero. Thus, unless at least 1% of the variance in the criterion set is explained by the predictor set, the relationship depicted by the canonical correlation is uninterpretable.

It should be noted that canonical correlation, indicates the maximum variance explainable in one set, given the other (i.e., redundancy). But canonical analysis is a predictive model, as opposed to an explanatory model (ie., simple structure), in that the model focuses on linear composites rather than substantively meaningful dimensions (cf. Miller and Farr, 1971; Skinner, 1977b, 1978). Thus the results from the canonical correlation analysis provide a parsimonious representation of the overlap between the predictor and criterion sets (i.e., reduncancy) in terms of maximum predictable variance.

Analysis of Variance

The influence of grade, migration, residence, sex and socioeconomic status at the level of means is determined in Chapter VI, simultaneously for each personality trait and each adjustment trait, with the technique of analysis of variance. A fixed effects regression approach, with effect coding for group membership (ie., 1, 0, -1), in which main effects and interactions are evaluated simultaneously is utilized (Overall and Klett, 1972; Overall and Spiegel, 1969; Kerlinger and Pedhazur, 1973). With this model, interactions are assumed to be equal in importance to main effects and are thus given greater priority than in the classical model (cf. Winer, 1971). Hence, a non-additive model is actually encouraged, and the analysis searches for sources of interaction. Also analysis of variance focuses on mean differences, attributable to between group variation which is invariant regardless of the ordering of the factors in the design. Where bivariate and canonical correlation analysis may have been influenced by the ordering of the levels for social class (cf. Buss, 1966) or for the logically constructed factor, migration, the analysis of variance design will be more sensitive to the influence of social class or of migration if the familiar-unfamiliar gradient has been incorrectly ordered. Thus analysis of variance is used to detect interactions as well as the proper ordering of the factors.

The design matrix for analysis of interactions among the demographic characteristics is limited to two way interactions due to the difficulty of interpretion and thus limited utility of higher order interactions, therefore three way and higher order interactions are pooled into error sums of squares.

Through the use of a regression approach to analysis of variance all factors and interactions are analyzed simultaneously. Although, each trait is analyzed separately, rather than through multivariate analysis of variance where each domain, personality and adjustment, would be analyzed simultaneously (as with canonical correlation) because of the complexities of a multivariate analysis of variance design with unequal cell sizes

> "What can be said here is that MANOVA becomes exceedingly complex, once the significance tests have been carried out. This is particularly true if the designs are not balanced in the sense of having an equal number of replications per cell. While a number of computer programs provide the flexibility of handling nonorthogonal MANOVA designs, the problem of interpreting one's findings become increasingly difficult in the case of both correlated predictors and correlated criterion variables." Green (1978, p. 325).

In short, since multivariate analysis of variance derives canonical variates in the criterion set, the method focuses on prediction rather than explanation (ie., simple structure). Hence, analysis of variance is used with each of the PRF-E and BPI constructs to facilitate a substantively meaningful interpretation.

The results are, however, subjected to conservative interpretation due to the inflated degrees of freedom and failure to consider covariances among the criterion variables when analyzing each trait separately. By analyzing each trait separately and accepting results as significant at the 5% level, five per cent of the traits examined would be signinicant by chance alone. Thus explained variation must be used in conjunction with statistical significance to ensure that relationships are not erroneously accepted.

Example of Analysis of Variance Design With Occupational Aspiration

An analysis, utilizing the same analysis of variance design that is used for personality and adjustment in Chapter VI, is presented below in Table 5.2 for the differential occupational aspirations of rural and urban youth (cf. Table 4.11), as an example. Since, in Chapter VI, due to space requirements only a summary version of the analysis of variance layout can be presented.

An examination of Table 5.2 indicates that residence,

Table 5.2

Student Aspiration By Grade, Migration, Residence, Sex and Social Class

Source of Variation	Sum of Squares	DF	Mean Square	F	P
Main Effects	13586.1	12	1132.2	5.4	.000
Grade	558.6	1	558.6	2.7	.103
Migration	1905.3	4	476.3	2.3	.059
Residence	2356.8	2	1178.4	5.6	.004
Sex	1264.6	1	1264.6	6.0	.014
Social Class	5425.6	4	1356.4	6.5	.000
Two Way Interactions	12639.2	53	238.5	1.1	.233
Residence by Sex	211.0	2	105.5	.5	.604
Residence by Social Class	1826.1	8	228.3	1.1	.367
Residence by Migration	2936.9	8	367.1	1.8	.082
Residence by Grade	1043.6	2	521.8	2.5	.083
Sex by Social Class	846.4	4	211.6	1.0	.401
Sex by Migration	946.6	4	236.6	1.1	.341

Table 5.2

Continued

Source of Variation	Sum of Squares	DF	Mean Square	F	P
Sex by Grade	289.0	1	289.0	1.4	.240
Social Class by Migration	2052.6	16	128.3	.6	.876
Social Class by Grade	308.3	4	77.1	.4	.831
Migration by Grade	595.1	4	148.8	.7	.585
Explained	34067.6	65	524.1	2.5	.000
Residual	245185.8	1171	209.4		
Total	279253.4	1236	225.9		

Explained/Total Variation For Full Model = 12.2%

Table 5.3

Aspiration Means and Standard Deviations For Levels of Grade, Migration, Residence, Sex and Social Class

Means

Level	Grade	Migration	Residence	Sex	Social Class
1	55.9	52.3	51.7	52.1	52.6
2	52.6	55.1	53.2	55.5	51.8
3		55.8	58.2		52.9
4		54.7			54.9
5		53.6			60.1

Grand Mean = 54.1

Standard Deviations

Level	Grade	Migration	Residence	Sex	Social Class
1	15.1	14.5	14.6	15.4	16.0
2	14.7	15.6	14.5	14.6	14.2
3		14.8	15.5		14.7
4		16.1			14.9
5		15.1			14.6

Grand Standard Deviation = 15.0

sex, social class, significantly, and migration, marginally, contribute to explain differences in occupational aspiration. Grade, however, does not contribute as an explanatory variable. Also the model is linear or additive (cf. Scheffe, 1959 p.93) in nature since none of the two way interactions reach an acceptable level of statistical significance. Thus the significant main effects contribute additively to produce differences in aspiration. Although, the ratio of explained to total variation, the percentage of variation explained by the full model (12.2%) indicates that much of the variation in student occupational aspiration is not explained by the model.

Since the main effects reach statistical significance the means for the levels of each factor are presented in Table 5.3. Also the standard deviations for the levels of each factor are presented for normative purposes. An examination of Table 5.3 indicates that occupational aspiration is a monotonically increasing function of residence, from farm to urban, as indicated previously in Table 4.11. Also gleaned from Table 5.3 is that female students have higher occupational aspirations than the male students. Students that had never moved had the lowest occupational aspirations, followed by students that had moved less than two years to a different environment, followed by students who had moved less than two years to a similar environment, followed by students who had moved more than three years to a similar environment, and students with the highest occupational aspirations are students who had moved more than three years to a different environment.

These results correspond with other literature[1] in that residence, from farm to urban and increasing social class are associated with higher levels of occupational aspirations. Although, other researchers have typically found males to have higher occupational aspirations than females, with the exception of Turner (1978). Migrational history, however, has not been assessed, to the author's knowledge, in other studies. Although willingness to migrate, among youth, has been found to be associated with higher aspirations.

For example, Strong (1963) with 1,105 high school students in Alberta found that urban youths had higher occupational aspirations than rural youths, controlling for social class. George and Kim (1971) with 1,609 high school students in London and St. Thomas Ontario found higher class, urbanism and males rather than females to have higher aspirations. Nelson (1971) investigated 60,000 high school students in Minnesota. Controlling for social class students in smaller communities had lower educational aspirations than urban students. Blackburn, Molnar and Tulloch (1975) with 22,158 high school students in mid-northern Ontario found urbanism and willingnes to migrate to be associated with higher educational and occupational aspirations. Educational and occupational aspirations were also found to be highly associated. Drabick (1974) with 1,176 high school students in North Dakota found higher aspirations to be associated with higher classes, urbanism and willingness to migrate. Turner (1978), however, with 506 high school students in Edmonton and counties within a 100 mile radius found females to have higher occupational expectations than males, although urbanism was associated with higher occupational aspirations.

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[1] A more complete source of literature may be obtained from Kulvesky and Reynolds (1970a, 1970b, 1970c).

Rural-urban aspirational differences, are usually attributed to differences in opportunity or knowledge of occupations. In the next chapter an alternative explanation is explored, through an analysis of rural-urban personality differences: Are rural-urban needs different thus contributing to different aspirations and vocational choices?

Further Stratification

In Chapter VI, based on the bivariate correlation, canonical correlation and analysis of variance results the data is stratifed on the most significant source of variation. In the event that a linear model is indicated (i.e., no significant interactions) from the analysis of variance and that the correlational analysis does not differ substantively from the analysis of variance results (e.g., the factors are ordered correctly or have trivial effects) a correlational approach will be used to re-analyze the further stratified data. Otherwise the further stratified data will be re-analyzed with analysis of variance.

Profile Analysis

Finally a classification procedure termed Modal Profile analysis (Skinner, 1975, 1977a, 1978) is used to evaluate the similarity in types of people across the rural-urban strata. Modal Profile Analysis is a typological or classificatory procedure whereby people are placed into homogeneous clusters in a multivariate space. Various studies that have utilized Modal Profile analysis (e.g., Jackson, 1978; Reed, 1976; Skinner, 1977a; Skinner and Jackson, 1977; Skinner, Reed and Jackson, 1976; Smiley, 1977) indicate the value of Modal Profile analysis as a research tool.

Modal profile analysis has the unique advantage of differentiating the independent contribution of elevation, shape and scatter in profile similarity, whereas, other methods of typological analysis confound these parameters (Skinner, 1975, 1978). Elevation is the mean score of the entity (subject) over all attributes (variables), scatter is the dispersion of the scores of each entity on all attributes and shape is the pattern of ups and downs (Cronbach and Gleser, 1953; Skinner, 1975, 1978). In this study profile similarity is limited to a consideration of shape only. Profile similarity in terms of the elevation and scatter parameters will be considered elsewhere. Although, some indication, of differences in elevation may be gleaned from the analysis of variance results reported in Chapter VI.

Stage I: Within Sample Analysis

Firstly, entity factors[1] are produced within each sample by decomposing the sample data matrices (farm, rural non-farm and urban) according to the Eckart and Young (1936) theorem, such that

$X = PDQ'$

where P is the left hand eigenvectors describing the relations among entities, D is the diagonal matrix of singular values with the number of nonzero values indicating the rank of the matrix and Q is the right hand eigenvectors describing the relations among attributes.

Entity factors are produced by rescaling the left hand eigenvectors by their associated singular values. In order to make the analysis consistent with factoring an entity correlation matrix, the data matrix is double standardized by row and column to have unit variance and zero mean and then the entities are rescaled by the reciprocal of the square root of the number of attributes.[1] Then the entity factors are rotated to simple structure by rotating five factors for the PRF-E (cf. Skinner, 1977) and four factors for the BPI (cf. Skinner and Jackson, 1977) to a univocal varimax criterion (Jackson and Skinner, 1975).[2] A univocal varimax criterion is accomplished by first rotating to a varimax criterion (Kaiser, 1958) and then setting up a target matrix with salients hypothesized such that each variable optimally loads on only one factor. Then an othogonal procrustes rotation (Shonemann, 1966) is performed.

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[1] Factoring entities rather than attributes has been typically referred to as Q type, inverted or transposed factor analysis as opposed to R type factor analysis where attributes are factored (Cattell, 1952; Cronbach and Gleser, 1953; Eysenck, 1970; Stephenson, 1952). Inverted and transposed factor analysis, however, are misnomers since both R and Q type factors can be obtained directly from the data matrix, without computing a cross product matrix, by utilizing the Eckart and Young theorem (Eckart and Young, 1936). This procedure has recently been referred to in the literature as singular value decomposition (e.g., Chambers, 1977; Green, 1978; Stewart, 1973).

Each attribute is projected into the entity factor space by computing orthogonal factor scores and each subject is classified within each sample as belonging to a particular profile on the basis of highest loading above .5 in absolute value since the profiles are bi-polar. The efficacy of classification within each sample is then determined by the proportion of subjects in each sample that are classifiable.

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[1] The column or attribute standardization used the normative data, derived from this study, reported in Chapter VI. Other norms could have been used such as those reported by Jackson (1974) or Smiley (1977) for the PRF-E and BPI respectively. However, the size of the sample in this study justifies the usage of local norms.

[2] The efficacy of retaining factors based on the known factor structure of the PRF-E and BPI could be confirmed by examining the eigen value distribution and retaining factors associated with eigen values two standard deviations above eigenvalues from random data or perturbed data (Skinner, 1977) or by using Cattell's scree test (Cattell, 1966; Cattell and Vogelman, 1977) or the Kaiser-Guttman eigenvalues greater than or equal to one criterion (Guttman, 1954; Kaiser, 1960). The primary danger, however, is over versus under factoring. Thus classification hit rate in conjunction with the known factor structure is an adequate procedure for retaining factors.

Stage II: Between Sample Analysis

Relations among samples are highlighted at this stage by cross classifying subjects between samples, with a factor extension rationale (cf. Dwyer, 1937; Khan, 1973) and evaluating congruency through classification hit rate. A multiprofile-multisample super correlation matrix is then computed by correlating the factor scores (preliminary profiles) across the m samples. The within sample correlations are characterized by an identity matrix since the within sample profiles are orthogonal. The hetero-sample partitions represent covariation among the sample profiles. These hetero-sample partitions contain the complete multiple correlation analysis of each sample regressed in the space of the other samples. The overlap between two sets of sample profiles is determined by dividing the sum of squared correlations in the hetero-sample partitions by the number of profiles in the smaller set. This measure is analogous to the coefficient of congruence for fixed samples but different variables, suggested by Wrigley and Neuhaus (1955). This measure, however, is a lower bound estimate of congruence since the orientation of the profiles is determined within samples and thus will capitalize upon chance orientation.

Lastly, population profiles or Modal Profiles are produced through multiple factor analytic procedures by decomposing the multiprofile-multisample super matrix according to the Eckart and Young (1936) theorem. Principal axes factors common to the m samples are produced by rescaling the left hand eigen vectors (depicting relations among the profiles) by their associated singular values. The number of factors retained is determined on the basis of generalized canonical correlation procedures (cf. Horst, 1965; Kettering, 1971), whereby the profile factor space, common to the m samples, is determined by generalized canonical correlations greater than zero. The maximum eigen value is at most m and the degree of fit between the sample profiles and the Modal Profiles is determined by m minus the eigen value associated with the principal axes factors. Factors are retained that are associated with generalized canonical correlations greater than zero which is analagous to the Kaiser-Guttman eigen values greater than or equal to one criterion (Guttman, 1954; Kaiser, 1960). These factors are then rotated to simple structure by rotating to a univocal varimax criterion (Jackson and Skinner, 1975) and Modal Profiles are produced by projecting the rotated principal axes factors into the attribute factor space (i.e., factor scores).

Stage III: Generalizability of Modal Profiles

The generalizability of the Modal Profiles is then assessed by relating the Modal Profiles to each sample with a factor extension procedure (Dwyer, 1937; Khan, 1973) whereby each subject in each of the preliminary samples is classified as belonging to one of the Modal Profiles on the basis of highest loading above .5 ($r = .5$) in absolute value to a Modal Profile.

Finally, an analysis is done on the Modal Profiles to determine rural-urban residence, grade, migration, sex and socioeconomic differences so that at a typological level rural-urban differences can be evaluated. Subjects are classified as belonging to the Modal Profiles on the basis of highest loading above .50 and then crosstabulations of type membership, positive or negative pole, with grade, migration, residence, sex and social class are performed. The strength of the relationship is assessed with the chi square statistic (X^2). Since X^2 is a function of the sample size, when the X^2 is significant, the predictive significance of the relationship is determined through the uncertainty coefficient (Hays, 1973). In this way the proportionate reduction in error in predicting Modal Profile membership by knowing the demographic information provided by the explanatory set is determined.

Hypotheses Tested

All hypotheses tested are formulated as null hypotheses. This is partly convention and partly necessity since the literature reviewed in Chapter II indicates that the literature is too inadequate to formulate directional hypotheses.

Personality

1. Grade, migration, residence, sex or socioeconomic status or the interactions among these variables do not contribute to variation in the following personality traits:
    1) Abasement
    2) Achievement
    3) Affiliation
    4) Aggression
    5) Autonomy
    6) Change
    7) Cognitive Structure
    8) Defendence
    9) Dominance
    10) Endurance
    11) Exhibition
    12) Harmavoidance

13) Impulsivity
14) Nurturance
15) Order
16) Play
17) Sentience
18) Social Recognition
19) Succorance
20) Understanding
21) Social Desirability

2. The sample specific profiles for personality do not differ either in terms of cross-classification efficiency or structure.
3. The classification efficiency of the Modal Profiles does not differ across samples.
4. The distribution of grade, migration, residence, sex and socioeconomic status does not differ among Modal Profiles.

Adjustment

1. Grade, migration, residence, sex or socioeconomic status or the interactions among these variables do not contribute to variation in the following adjustment traits:
    1) Hypochondriasis

2) Depression
3) Denial
4) Interpersonal Problems
5) Social Deviation
6) Persecutory Ideas
7) Anxiety
8) Thinking Disorder
9) Impulse Expression
10) Social Introversion
11) Self Depreciation
12) Deviation

2. The sample specific profiles for adjustment do not differ either in terms of cross-classification efficiency or structure.
3. The classification efficiency of the Modal Profiles does not differ across samples.
4. The distribution of grade, migration, residence, sex and socioeconomic status does not differ among Modal Profiles.

CHAPTER SIX

RESULTS IN THE ATTRIBUTE SPACE

Introduction

In this chapter bivariate correlations between, grade, migration, residence, sex and social class with with personality and then with adjustment are examined.[1] Then these relationships with personality and adjsustment are presented parsimoniously through canonical correlation. Then the relationships are examined with analysis of variance to determine interactions among the explanatory set and to ascertain the ordering of the explanatory variables, i.e., analysis of variance uses nominal codes that are insensitive to order. Finally, based on these results, the sample is stratified on the basis of the most important explanatory variable and the relationships for personality and adjustment are re-examined with bivariate and canonical analysis.

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[1] Note: residence was keyed as 1 = farm, 2 = rural non-farm, and 3 = urban; sex was keyed as 1 = male and 2 = female; social class was keyed as 1 = lowest class and 5 = highest class; grade was keyed as 1 = eleven and 2 = twelve; and migration was keyed as 1 = never moved, 2 = moved to a similar type of residence location 3 or more years ago, 3 = moved to a different type of residence location 3 or more years ago, 4 = moved to a similar type of residence location 2 or less years ago, and 5 = moved to a different type of residence location 2 or less years ago.

Bivariate Correlations

In this section zero order correlations of residence, sex, social class, migration and grade with the PRF-E variables are presented in Table 6.1 and correlations with the BPI variables are presented in Table 6.2. An inspection of Table 6.1 and Table 6.2 indicates that there are some substantial correlations with sex for both the PRF-E and BPI variables, as would be expected from the normative data presented by Jackson (1974) for the PRF-E and by Smiley (1977) for the BPI. For residence, social class, migration and grade, however, the correlations with the PRF-E and BPI variables are weak.

The validity of the social class variable (Chapter III - Experimental Design), in a correlational analysis, developed from a continuous variable, was then checked by correlating the interval level prestige scores with the personality and adjustment traits. These correlations are equivalent, in terms of magnitude and direction, to the correlations for the social class variable.[1]

Thus at this stage it appears that sex differences are the major demographic source of variation in personality and adjustment. Residence, social class, migration and grade seem relatively unimportant especially since the largest

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[1] The correlations between prestige and the PRF-E variables are: -.05, .02, .02, -.01, .07, .04, -.05, .05, .12, .01, .09, -.12, .05, -.01, -.09, .08, .08, .02, -.02, .04 and .02; and the correlations with the BPI variables are: -.02, -.01, -.04, .01, .06, -.04, -.05, -.03, .06, -.06, -.07, and -.02.

Table 6.1

Correlations Between Residence, Sex, Social Class, Migration, Grade and PRF-E Variables

n = 1,444

	Residence	Sex	Social Class	Migration	Grade
PRF-E Variable	r	r	r	r	r
Abasement	-.09	.21	-.04	-.06	.02
Achievement	-.04	-.03	.03	.01	.06
Affiliation	.02	.20	.03	.00	.02
Aggression	-.01	-.23	-.01	.02	-.05
Autonomy	.01	-.28	.06	.02	.00
Change	.00	.20	.03	.05	.05
Cognitive Structure	.00	.14	-.05	-.03	.03
Defendence	.00	-.20	.05	.03	-.08
Dominance	.08	-.22	.11	.01	-.02
Endurance	-.07	-.05	.01	.02	.05
Exhibition	.07	-.01	.09	.08	-.01
Harm Avoidance	-.02	.35	-.11	-.05	.04
Impulsivity	.08	-.04	.04	.02	-.04
Nurturance	.04	.53	.00	.03	-.03
Order	-.09	.19	-.07	.00	.08
Play	.05	-.06	.08	.02	-.04

Table 6.1

Continued

PRF-E Variable	Residence	Sex	Social Class	Migration	Grade
	r	r	r	r	r
Sentience	.11	.38	.08	.04	.00
Social Recognition	-.01	.06	.01	.00	-.02
Succorance	.03	.33	-.03	.02	-.02
Understanding	.05	.14	.03	.04	.06
Social Desirability	-.03	.12	.03	-.02	.08

Table 6.2

Correlations Between Residence, Sex, Social Class,
Migration, Grade and BPI Variables

n = 1,444

	Residence	Sex	Social Class	Migration	Grade
BPI Variable	r	r	r	r	r
Hypochondriasis	.01	.19	-.01	-.01	-.07
Depression	.01	-.03	-.01	.02	-.08
Denial	-.06	-.14	-.03	.02	.04
Interpersonal Problems	.01	-.25	.01	.03	-.09
Social Deviation	.02	-.42	.05	.06	-.08
Persecutory Ideas	.00	-.11	-.04	.02	-.04
Anxiety	-.02	.25	-.06	-.01	-.03
Thinking Disorder	.01	.08	-.03	.01	-.09
Impulse Expression	.06	-.10	.06	.02	-.11
Social Introversion	-.05	-.24	-.07	.00	.00
Self Depreciation	-.03	-.09	-.06	.01	-.07
Deviation	.02	-.08	-.02	.07	-.07

zero order correlation for any of these variables is .11, in absolute value, which consequently indicates a maximum of only 1% in explained variation for any particular variable.

Canonical Correlations

To represent the relationships introduced in Tables 6.1 and 6.2 simultaneously a canonical correlation analysis was performed between grade, migration, residence, sex and social class with the PRF-E variables (Table 6.3) and then with the BPI variables (Table 6.4). In the PRF-E variable set, Social Desirability is included to discern whether or not any of the groups difffer on this variable, however, the critical item scale Deviation is omitted from the BPI set since this scale is used primarily for clinical interpretion and thus it makes little sense to include Deviation in a multivariate analysis, where if included, it would effect the positioning of the canonical variates.

Personality

With the canonical correlation analysis of the PRF-E variables with grade, migration, residence, sex and social class two canonical correlations are retained. An examination of the canonical loadings for the predictor set indicates that for the first canonical correlation (r^2 = .49) that sex is collinear (1.0) with the first canonical

Table 6.3

Canonical Correlations Of Grade, Migration, Residence, Sex and Social Class With the PRF-E Variables

n = 1,444

Variable	Canonical Weights		Canonical Loadings	
Abasement	-0.07	-0.46	0.30	-0.41
Achievement	-0.08	-0.02	-0.03	-0.10
Affiliation	0.01	-0.10	0.28	0.07
Aggression	-0.10	-0.54	-0.34	-0.01
Autonomy	0.01	-0.06	-0.40	0.17
Change	0.25	-0.17	0.31	0.06
Cognitive Structure	0.06	0.19	0.21	-0.14
Defendence	-0.09	0.12	-0.31	0.16
Dominance	-0.21	0.37	-0.31	0.47
Endurance	-0.12	-0.22	-0.06	-0.18
Exhibition	-0.03	0.14	-0.01	0.41
Harm Avoidance	0.38	-0.23	0.49	-0.33
Impulsivity	0.23	0.23	-0.06	0.36
Nurturance	0.48	0.14	0.75	0.07
Order	0.13	-0.36	0.29	-0.44
Play	-0.02	0.09	-0.09	0.31
Sentience	0.31	0.42	0.56	0.42
Social Recognition	-0.08	-0.12	0.08	-0.03
Succorance	0.11	0.07	0.47	0.02

Table 6.3

Continued

Understanding	0.06	0.12	0.21	0.18
Social Desirability	0.01	-0.16	0.19	-0.11
Variance Accounted For			2.30	1.44
Proportion of Variance Accounted For			0.11	0.07
Redundancy			0.05	0.00
Grade	0.08	-0.13	0.03	-0.34
Migration	0.03	0.14	0.04	0.28
Residence	0.03	0.74	0.07	0.85
Sex	1.00	-0.02	1.00	0.01
Social Class	-0.02	0.48	-0.06	0.60
Variance Accounted For			1.00	1.28
Proportion of Variance Accounted For			0.20	0.25
Redundancy			0.10	0.02

Table 6.4

Canonical Correlations Of Grade, Migration, Residence, Sex and Social Class With the BPI Variables

n = 1,444

Variable	Canonical Weights	Canonical Loadings
Hypochondriasis	0.27	0.31
Depression	-0.01	-0.06
Denial	-0.19	-0.23
Interpersonal Problems	-0.24	-0.45
Social Deviation	-0.59	-0.75
Persecutory Ideas	-0.15	-0.19
Anxiety	0.35	0.43
Thinking Disorder	0.12	0.12
Impulse Expression	-0.06	-0.20
Social Introversion	-0.27	-0.41
Self Depreciation	-0.01	-0.16

Variance Accounted For	1.39
Proportion of Variance Accounted For	0.13
Redundancy	0.04

Table 6.4

Continued

Grade	0.08	0.05
Migration	-0.09	-0.08
Residence	-0.01	0.01
Sex	1.00	0.99
Social Class	-0.00	-0.06

Variance Accounted For	1.00
Proportion of Variance Accounted For	0.20
Redundancy	0.07

variate of the predictor set, which accounts for 10% of the variance (i.e., redundancy in the criterion set given the predictor set) in the PRF-E variables. Grade, migration, residence and social class are virtually independent of the first canonical variate of the predictor set. A number of PRF-E variables make up the first canonical variate of the criterion set. The most salient variables for the first canonical variate of the criterion set are: Autonomy (-.40), Harmavoidance (.49), Nurturance (.75), Sentience (.56) and Succorrance (.47). These results correspond to the zero order correlational analysis, introduced in Table 6.1, in that the most salient canonical loadings are the most salient zero order correlations. Canonical analysis, supplements the zero order analysis, however, through the redundancy index which indicates that for the first canonical correlation 10% of the variance in the PRF-E traits are attributable to sex membership.

The second canonical correlation (r^2 = .06), is derived with canonical variates that are orthogonal to the first set of variates. The canonical predictor variate for the second set consists primarily of residence location (.85) and social class (.60) but accounts for only 2% of the variance in the PRF-E variables. Thus migration and grade are unimportant for variation in personality and social class and residence location are relatively unimportant but have a marginal influence (i.e., 2%) on the salient PRF-E loadings for the second canonical variate, namely, Abasement (-.41), Dominance (.47), Exhibition (.41), Order (-.44) and Sentience (.42).

Adjustment

With the BPI canonical analysis, only one canonical variate was extracted. The predictor set is collinear with sex (.99) and accounts for 7% of the variance in the BPI variables. Once again, although in a different context (adjustment rather than personality), the predictor set is collinear with sex but essentially orthogonal to grade, migration, residence and social class. The salient BPI variables determined from an examination of the loadings for the first canonical correlation are Hypochondriasis (.31), Interpersonal Problems (-.45), Social Deviation (-.75), Anxiety (.43) and Social Introversion (-.41).

Summary

Hence, after the canonical analysis for the PRF-E and BPI variables, sex is found to be the primary source of variance in the PRF-E and BPI, i.e., sex accounts for 10% of the variance in personality and for 7% of the variance in adjustment. After sex has been accounted for, residence and social class account for 2% of the variance in personality, whereas after sex has been accounted for with the BPI, grade, migration, residence and social class account for essentially 0% of the variance in adjustment.

Analysis of Variance

A separate analysis of variance was performed for each personality and adjustment trait with the layout presented in Chapter Five (Table 5.2) for occupational aspiration. Only results with significance, $p \leq .10$, are presented for the PRF-E in Table 6.5 and for the BPI in Table 6.6.

In Tables 6.5 and 6.6 standard abbreviations for the PRF-E and BPI variables are used. For the PRF-E variables the first two letters of the variable name are used except where there are two words to the variable name (e.g., Cognitive Structure), in which case the first letter of each word is used and with Social Desirability the abbreviation DY is used. For the BPI the first three letters of each word are used except where there are two words (e.g., Impulse Expression), in which case the first two letters of the first word and the first letter of the second word are used. The abbreviations for the explanatory variables grade, migration, residence, sex and social class are: Gr, Mig, Res, Sex and Ses.

Table 6.5

Summary of Significant Analysis of Variance Results For the PRF-E Variables by Grade, Migration, Residence, Sex and Social Class

Trait	Main Effect	P	E/T	Interaction	P	E/T	Full Model P	Full Model E/T
AB	Sex	.000	2.8%	Gr x Sex	.010	0.5%	.000	9.5%
AC							.229	5.4%
AF	Sex	.000	2.1%	Mig x Res	.047	1.1%	.000	8.8%
AG	Sex	.000	3.9%					
	Ses	.074	0.6%	Mig x Res	.087	0.9%	.000	11.1%
AU	Sex	.000	4.9%				.000	10.8%
CH	Gr	.056	0.3%	Res x Sex	.030	0.5%		
	Sex	.000	2.5%	Res x Ses	.050	1.1%	.000	9.3%
CS	Sex	.001	0.7%	Res x Sex	.069	0.4%	.031	6.4%
DE	Sex	.000	2.9%	Gr x Res	.092	0.3%	.000	10.0%
DO	Res	.078	0.4%					
	Ses	.037	2.3%					
	Sex	.000	0.7%				.000	9.9%
EN							.048	6.2%
EX	Res	.009	0.7%					
	Ses	.047	0.7%	Res x Sex	.054	0.4%	.048	6.2%
HA	Sex	.000	7.0%	Sex x Ses	.074	0.6%	.000	16.2%
IM	Ses	.083	0.6%	Mig x Ses	.076	1.8%		

Table 6.5

Continued

	Main						Full Model	
Trait	Effect	P	E/T	Interaction	P	E/T	P	E/T
				Res x Sex	.057	0.4%		
				Res x Ses	.020	1.3%	.007	7.0%
NU	Sex	.000	13.7%	Res x Sex	.083	0.3%	.000	30.5%
OR	Sex	.000	1.9%	Gr x Mig	.099	0.5%	.000	10.3%
PL	Ses	.000	1.6%				.072	6.0%
SE	Sex	.000	7.3%					
	Ses	.051	0.6%	Gr x Ses	.075	0.5%	.000	20.2%
SR	Sex	.028	0.4%	Res x Ses	.088	1.0%		
				Sex x Ses	.092	0.6%	.000	4.9%
SU	Sex	.000	6.0%				.000	13.8%
UN	Mig	.066	0.6%					
	Res	.008	0.7%	Gr x mig	.072	0.6%		
	Sex	.000	1.0%	Gr x Sex	.010	0.5%	.000	9.4%
DY	Sex	.001	0.8%				.032	6.4%

Note: E/T is the ratio of explained to total variance.

Table 6.6

Summary of Significant Analysis of Variance Results For the BPI Variables by Grade, Migration, Residence, Sex and Social Class

Trait	Main Effect	P	E/T	Interaction	P	E/T	Full Model P	Full Model E/T
HYP	Gr	.071	0.2%	Gr x Sex	.060	0.3%		
	Sex	.000	2.1%				.002	7.5%
DEP	Mig	.031	0.8%				.433	4.3%
DEN	Gr	.085	0.2%	Sex x Ses	.061	0.7%		
	Sex	.001	0.8%				.016	6.7%
INP	Gr	.007	0.5%					
	Sex	.000	4.2%				.000	11.5%
SOD	Gr	.034	0.3%					
	Mig	.005	0.9%					
	Sex	.000	9.4%				.000	21.8%
PEI	Mig	.030	0.8%					
	Ses	.006	0.9%					
	Sex	.000	1.0%				.036	6.3%
ANX	Mig	.005	1.0%	Mig x Ses	.024	2.0%		
	Sex	.000	3.9%	Res x Sex	.021	1.2%	.000	12.0%
THD	Gr	.012	0.5%					
	Mig	.047	0.7%					
	Sex	.015	0.4%				.227	5.4%

Table 6.6

Continued

Trait	Main Effect	P	E/T	Interaction	P	E/T	Full Model P	Full Model E/T
IME	Sex	.013	0.4%	Res x Sex	.034	0.5%	.000	8.8%
SOI	Sex	.000	3.7%					
	Ses	.025	0.8%				.000	11.0%
SED	Sex	.017	0.4%	Gr x Ses	.001	1.4%	.035	6.4%
DEV	Mig	.027	0.8%	Gr x Sex	.019	0.4%		
	Sex	.098	0.2%	Gr x Ses	.050	0.7%	.027	6.5%

Note: E/T is the ratio of explained to total variance.

Personality

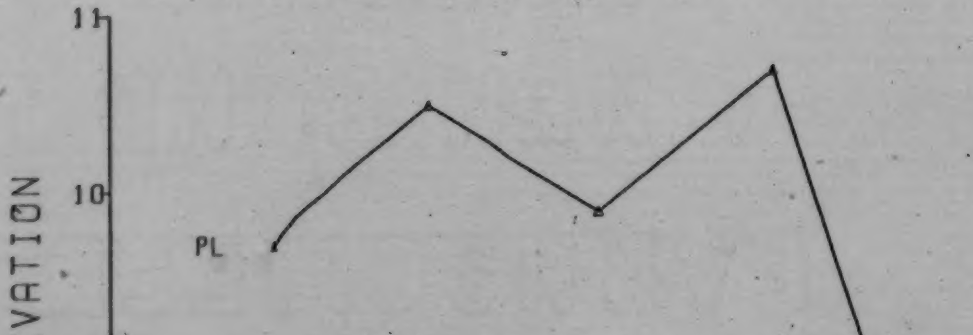
An examination of Table 6.5 indicates that sex has a significant main effect for 16 of the 21 PRF-E variables. Social class has a significant main effect in six of the variables, residence with three variables, grade with one variable and migration with one variable. The significant results for sex are all highly significant and the ratio of explained to total variation for sex is quite substantial for Harmavoidance (7.0%), Nurturance (13.7%), Sentience (7.3%) and Succorance (6.0%).

For grade, migration, residence and social class the results are generally of only marginal significance and with the exception of social class, each accounts for less than one per cent in total variation for any particular personality trait. Although, the influence of social class is also marginal in that the ratio of explained to total variation is trivial for the two relationships that surpass one per cent explained variation, e.g., Dominance (2.3%) and Play (1.6%). For Dominance, the lowest social class has the lowest score, the highest social class has the highest score, and the three classes in the middle have the same scores (Figure 6.1). With Play, classes II and IV have the highest scores, followed by classes I and III, and the highest class, class V, has the lowest score (Figure 6.1).

The two way interactions contain sex over half the time, which is to be expected, given the importance of sex

Figure 6.1

Social Class and Personality



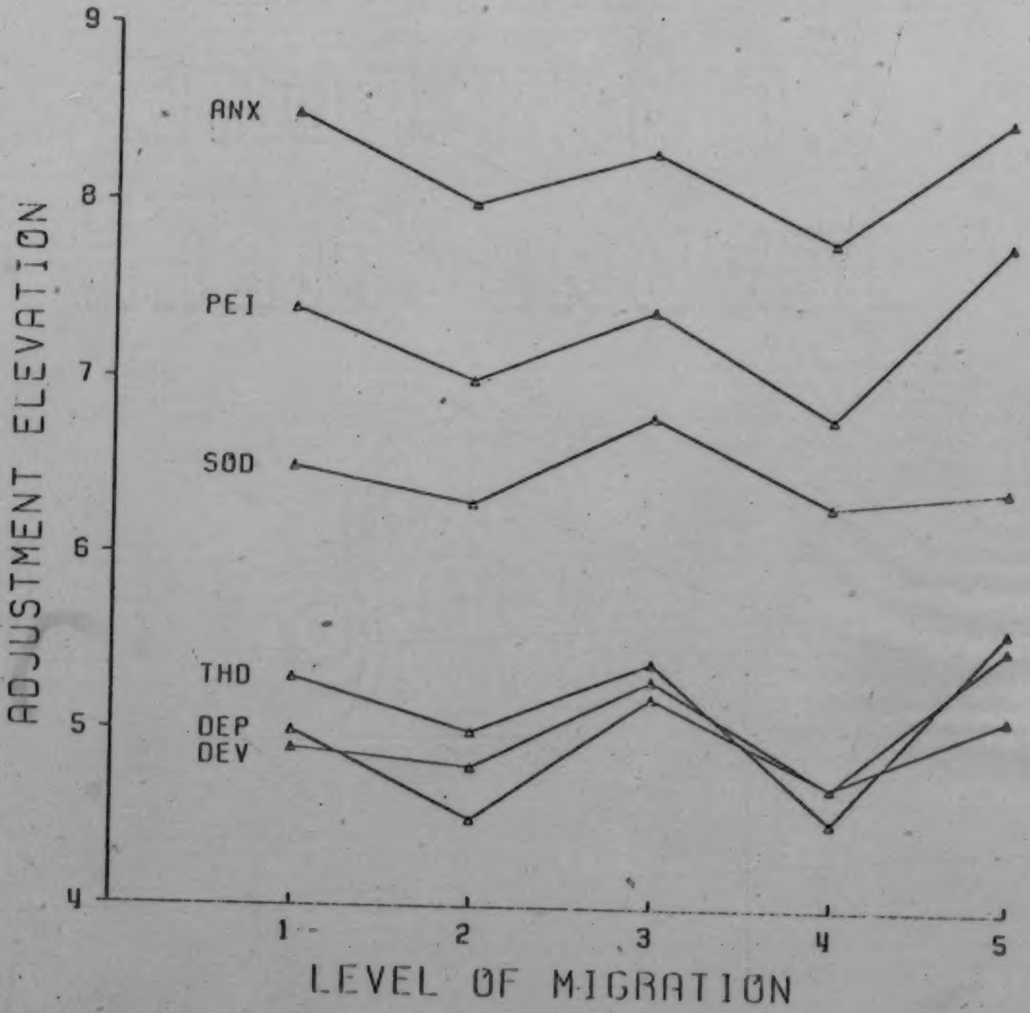
membership for variation in personality. The interactions, although often significant at an acceptable level, seldom account for as much as one per cent of the variance in any particular personality trait, with the largest amount of total variation accounted for being 1.8% for a migration by social class interaction for Impulsivity.

Adjustment

From Table 6.6 it can be seen that sex has a highly significant main effect for all the BPI adjustment traits except Depression and the critical item scale Deviation. In terms of the ratio of explained to total variation, sex is most important for Interpersonal Problems (4.2%), Social Deviation (9.4%), Anxiety (3.9%) and Social Introversion (3.9%). Migration is important for six traits but fails to account for more than one per cent in total variation in any particular trait. A consistent trend, however, generally is found in which two homogeneous clusters are identified (Figure 6.2). People who had never moved and migrants who had moved to a different type of residence location are more poorly adjusted than migrants who had moved to a similar type of residence location. Time of move is relatively unimportant, although recency has an opposite effect with the two types of migrants. With a similar type of move recency tends to deflate the adjustment score, whereas with a different type of move recency tends to elevate the

Figure 6.2

Migration and Adjustment



adjustment score. Thus, the conceptualization of migration in terms of time and type of move, seems to be confirmed, although, type of move is more important than time of move.

Grade is important for five traits but accounts for a maximum of only one half of one per cent of the total variation in any particular trait. Social class is important in two instances but reaches an asymptote, in terms of explained variation, at 0.9%. For Persecutory Ideas the lowest social class has the highest mean but the other social classes are relatively homogeneous. With Social Introversion the lowest social class has the highest mean, followed by class II and III and then IV and V. Residence, however, does not reach even the .10 level of statistical significance for any adjustment trait.

The two way interactions for adjustment are somewhat less frequent than for personality, but like personality the two way interactions are characterized by sex over half the time. The interactions, however, are substantively trivial in that the ratio of explained to total variation is less than one per cent in five out of eight cases with the highest amount of explained variation (2.0%) being for a migration by social class interaction for Anxiety.

Bivariate Correlations Stratified By Sex

Given the importance of sex as a source of variance in personality (10%) and adjustment (7%) as indicated through the canonical correlations and also given the magnitude of the bivariate correlations with sex, and the linear model as a function of sex in the analysis of variance results; the sample is stratified by sex, and the bivariate correlations with residence, social class, migration and grade are re-examined.

Personality

The correlations for males of residence, social class, migration and grade with the PRF-E variables are presented in Table 6.7 and these correlations for females are presented in Table 6.8. The correlations for males of residence, social class, migration and grade with the BPI variables are presented in Table 6.9 and these correlations for females are presented in Table 6.10.

An inspection of Tables 6.7 and 6.8 indicates that by analyzing the bivariate correlations separately for males and females, for the PRF-E variables, that the correlations improve somewhat but are still weak.

Table 6.7

Correlations For Males Between Residence, Social Class, Migration, Grade and PRF-E Variables

n = 602

PRF-E Variable	Residence r	Social Class r	Migration r	Grade r
Abasement	-.16	-.01	-.11	.11
Achievement	-.06	-.01	.02	.01
Affiliation	.00	.06	-.03	.04
Aggression	.06	-.04	.02	-.05
Autonomy	.05	.04	.07	-.06
Change	.07	.05	.07	.00
Cognitive Structure	.07	.00	-.01	-.01
Defendence	.08	.04	.04	-.11
Dominance	.15	.14	.00	-.05
Endurance	-.08	.04	.02	.02
Exhibition	-.03	.14	.08	.03
Harm Avoidance	.06	-.10	-.04	.06
Impulsivity	.01	.02	.00	-.05
Nurturance	-.05	.04	.01	.01
Order	.06	-.05	-.01	.04
Play	.14	.11	.00	-.02

Table 6.7

Continued

PRF-E Variable	Residence r	Social Class r	Migration r	Grade r
Sentience	.00	.11	.05	-.04
Social Recognition	.03	.03	-.02	-.05
Succorance	.13	-.02	-.02	-.02
Understanding	.05	.05	.09	-.04
Social Desirability	-.01	.07	-.03	.05

Table 6.8

Correlations For Females Between Residence,
Social Class, Migration, Grade and PRF-E Variables
n = 842

	Residence	Social Class	Migration	Grade
PRF-E Variable	r	r	r	r
Abasement	-.07	-.04	-.03	-.03
Achievement	-.03	.05	.01	.09
Affiliation	.02	.03	.02	.02
Aggression	-.04	.00	.02	-.07
Autonomy	.00	.06	-.01	.02
Change	-.07	.04	.03	.09
Cognitive Structure	-.06	-.07	-.04	.07
Defendence	-.03	.04	.04	-.08
Dominance	.06	.09	.01	-.02
Endurance	-.06	-.01	.03	.07
Exhibition	.09	.07	.07	-.04
Harm Avoidance	-.06	-.11	-.06	.05
Impulsivity	.10	.06	.03	-.05
Nurturance	.01	.01	.05	-.03
Order	-.14	-.08	-.01	.12
Play	.05	.05	.03	-.06

Table 6.8

Continued

PRF-E Variable	Residence r	Social Class r	Migration r	Grade r
Sentience	.05	.08	.04	.06
Social Recognition	-.02	.00	.02	.01
Succorance	.00	-.02	.04	-.01
Understanding	-.01	.03	.01	.13
Social Desirability	-.06	.01	-.02	.11

Table 6.9

Correlations For Males Between Residence,
Social Class, Migration, Grade and BPI Variables
n = 602

	Residence	Social Class	Migration	Grade
BPI Variable	r	r	r	r
Hypochondriasis	-.01	-.03	-.04	-.02
Depression	.02	-.04	.03	-.01
Denial	-.05	-.01	.05	.03
Interpersonal Problems	.06	-.02	.08	-.10
Social Deviation	.04	.03	.10	-.06
Persecutory Ideas	.03	-.07	.01	-.02
Anxiety	-.03	-.06	-.02	.00
Thinking Disorder	.04	-.06	.04	-.09
Impulse Expression	.04	.06	-.02	-.07
Social Introversion	-.01	-.11	.04	-.02
Self Depreciation	-.03	-.10	.03	-.08
Deviation	.04	-.02	.09	-.01

Table 6.10

Correlations For Females Between Residence,
Social Class, Migration, Grade and BPI Variables
n = 842

	Residence	Social Class	Migration	Grade
BPI Variable	r	r	r	r
Hypochondriasis	.00	.02	.01	-.10
Depression	.02	.00	.01	-.12
Denial	-.05	-.06	-.01	.05
Interpersonal Problems	.00	.01	.00	-.09
Social Deviation	.06	.04	.05	-.13
Persecutory Ideas	.00	-.02	.02	-.06
Anxiety	-.03	-.05	-.01	-.03
Thinking Disorder	-.01	-.01	.00	-.09
Impulse Expression	.09	.05	.05	-.14
Social Introversion	-.06	-.06	-.03	.00
Self Depreciation	-.03	-.04	.00	-.08
Deviation	.00	-.03	.05	-.13

Adjustment

The bivariate correlations presented in Tables 6.9 and 6.10, for males and females respectively, for the BPI variables, also improve somewhat but these correlations are still weak. Hence, from an anlaysis of bivariate correlations separately for males and females, it appears at this stage that there is little relationship between residence, social class, migration, or grade with either personality or adjustment.

Canonical Correlations Stratified By Sex

Finally, the relationships, stratified by sex, between grade, migration, residence and social class with adjustment and personality are presented through canonical correlation analysis for males and females for the PRF-E in Tables 6.11 and 6.12 and for males and females for the BPI in Tables 6.13 and 6.14.

Personality

In the canonical correlation analysis for males with the PRF-E, one canonical correlation (r^2 = .11) indicates that the predictor variate is defined primarily by residence (.94) and secondarily by grade (-.46) and social class (.40). The criterion variate is defined by Abasement (-.46),

Table 6.11

Canonical Correlations For Males Of Grade, Migration, Residence and Social Class With the PRF-E Variables

n = 602

Variable	Canonical Weights	Canonical Loadings
Abasement	-0.39	-0.46
Achievement	-0.28	-0.18
Affiliation	-0.14	-0.02
Aggression	-0.20	0.12
Autonomy	0.13	0.22
Change	0.15	0.26
Cognitive Structure	0.44	0.19
Defendence	0.13	0.28
Dominance	0.41	0.50
Endurance	-0.20	-0.17
Exhibition	-0.18	0.19
Harm Avoidance	0.05	-0.15
Impulsivity	0.40	0.19
Nurturance	0.05	0.00
Order	-0.11	-0.14
Play	0.14	0.22
Sentience	0.31	0.46
Social Recognition	-0.14	0.03
Succorance	0.10	0.07

Table 6.11

Continued

Understanding	0.33	0.38
Social Desirability	0.16	-0.01
Variance Accounted For		1.29
Proportion of Variance Accounted For		0.06
Redundancy		0.01
Grade	-0.25	-0.46
Migration	0.02	0.22
Residence	0.84	0.94
Social Class	0.24	0.40
Variance Accounted For		1.29
Proportion of Variance Accounted For		0.32
Redundancy		0.04

Table 6.12

Canonical Correlations For Females Of Grade, Migration Residence and Social Class With the PRF-E Variables

n = 844

Variable	Canonical Weights	Canonical Loadings
Abasement	0.30	0.24
Achievement	-0.18	0.17
Affiliation	0.07	-0.04
Aggression	0.44	-0.02
Autonomy	0.24	-0.03
Change	0.51	0.28
Cognitive Structure	0.05	0.35
Defendence	-0.11	-0.11
Dominance	-0.23	-0.27
Endurancen	0.15	0.27
Exhibition	-0.30	-0.35
Harm Avoidance	0.40	0.32
Impulsivity	-0.03	-0.40
Nurturance	-0.16	-0.06
Order	0.49	0.60
Play	0.01	-0.27
Sentience	-0.21	-0.11
Social Recognition	0.16	-0.04
Succorance	-0.01	-0.02

Table 6.12

Continued

Understanding	0.13	0.18
Social Desirability	0.38	0.32
Variance Accounted For		1.40
Proportion of Variance Accounted For		0.07
Redundancy		0.01
Grade	0.40	0.56
Migration	-0.11	-0.22
Residence	-0.73	-0.86
Social Class	-0.30	-0.43
Variance Accounted For		1.28
Proportion of Variance Accounted For		0.32
Redundancy		0.03

Table 6.13

Canonical Correlations For Males Of Grade, Migration, Residence and Social Class With the BPI Variables

n = 602

Variable	Canonical Weights	Canonical Loadings
Hypochondriasis	0.40	0.01
Depression	0.29	-0.16
Denial	0.11	-0.02
Interpersonal Problems	-0.64	-0.60
Social Deviation	-0.05	-0.32
Persecutory Ideas	0.06	-0.24
Anxiety	0.13	-0.13
Thinking Disorder	-0.56	-0.48
Impulse Expression	0.29	-0.08
Social Introversion	-0.13	-0.32
Self Depreciation	-0.66	-0.56

Variance Accounted For	1.21
Proportion of Variance Accounted For	0.11
Redundancy	0.01

Table 6.13

Continued

Grade	0.71	0.68
Migration	-0.44	-0.46
Residence	-0.00	-0.15
Social Class	0.62	0.51
Variance Accounted For		0.95
Proportion of Variance Accounted For		0.23
Redundancy		0.01

Table 6.14

Canonical Correlations For Females Of Grade, Migration, Residence and Social Class With the BPI Variables

n = 844

Variable	Canonical Weights	Canonical Loadings
Hypochondriasis	-0.18	-0.31
Depression	-0.67	-0.42
Denial	0.12	0.35
Interpersonal Problems	0.12	-0.30
Social Deviation	-0.46	-0.60
Persecutory Ideas	0.28	-0.17
Anxiety	0.41	0.06
Thinking Disorder	0.06	-0.24
Impulse Expression	-0.55	-0.69
Social Introversion	0.28	0.20
Self Depreciation	0.16	-0.11

Variance Accounted For	1.48
Proportion of Variance Accounted For	0.14
Redundancy	0.01

Table 6.14

Continued

Grade	0.71	0.82
Migration	-0.18	-0.26
Residence	-0.41	-0.60
Social Class	-0.30	-0.42

Variance Accounted For	1.28
Proportion of Variance Accounted For	0.32
Redundancy	0.02

Dominance (.50), Sentience (.46) and Understanding (.38). The variance explained in personality given the predictor set is 4%. Thus for males, residence location has a marginal effect but grade, and social class have small effects and migration has a negligeble effect.

For the female group (Table 6.12) the canonical correlation analysis for the PRF-E yielded one canonical correlation (r^2 = .09). The canonical variate for the criterion set is primarily defined by Impulsivity (-.40) and Order (.60), but only 3% of the variance in personality is accounted for by the predictor set, similar to the male group, in that residence (-.86) is the most important variable, grade (.56) and social class (.40) are secondary and migration is almost negligeble.

Adjustment

With adjustment, for the male group, one canonical correlation (r^2 = .05) was retained, however, the relationship is only marginally significant and the predictor set accounts for only 1% of the variance in adjustment. Grade (.68), residence (-.46) and social class (.51) are most salient for the predictor set and residence is relatively unimportant (-.15). For the criterion set Interpersonal Problems (-.60), Thinking Disorder (-.48) and Self Depreciation (-.56) are the salient variables.

For the female group, one canonical correlation (r^2 =

.05) was retained but as with the males, the relationship is only marginally significant. The predictor set, primarily defined by grade (.82), residence (-.60) and social class (-.42) accounts for 2% of the variance in adjustment primarily defined by Social Deviation (-.60) and Impulse Expression (-.69).

Summary

In this chapter an analysis with bivariate correlations and then with canonical correlations indicates that sex is substantially related to personality and adjustment, but that grade, migration, residence and social class are relatively unimportant. With analysis of variance the influence of grade, migration, residence, sex and social class and also the multiplicative influence of these variables is ascertained. Once again, the influence of sex is paramount but grade, migration, residence and social class are relatively unimportant as are the two way interactions. Thus a linear model is indicated in which personality and adjustment are a function of sex membership to a limited extent. Personality and adjustment are not a function of grade, migration, residence or social class. In other words, sex membership is responsible for differences in personality and adjustment, in many instances, but subjects differing in grade, migration, residence or social class belong to the same population with respect to personality and adjustment.

Given the importance of sex for personality (10% explained variance with canonical analysis) and for adjustment (7% explained variance with canonical analysis), the magnitude of the bivariate correlations with sex, and the importance of sex in the analysis of variance design, the sample is stratified by sex to further examine the relationships between grade, migration, residence and social class with personality and adjustment. Although the bivariate relationships improve in some instances for both males and females, a canonical analysis indicates that grade, migration, residence and social class are relatively unimportant for variation in personality or adjustment. The relationships are stronger with personality for both males (4% explained variation) and females (3% explained variation) than for adjustment in which only 1% of the variation is explained for males and 2% of the variation is explained for females. With personality for both males and females residence is the most important explanatory variable but the important criterion variables differ. With adjustment grade, residence and social class are the most important explanatory variables but the relationship is only marginally significant, and similar to the relationships with personality, the important criterion variables differed by sex which confirms that sex is the paramount source of variation for personality and adjustment among the explanatory set: grade, migration, residence, sex and social class.

In Chapter V the differential occupational aspirations of rural and urban youth are indicated. Two explanations are advocated. The first is differences in knowledge or opportunity. The second is differences in personality. In this chapter it has been demonstrated that differences in personality between rural and urban do not exist. Thus at this stage the differential occupational aspirations in rural and urban youths must be attributed to differences in knowledge or opportunity rather than congruence between needs and occupations (ie., person-job fit).

Normative Data For Males and Females

Sex differences are primary, for personality and adjustment. But grade, migration, residence, social class and the two way interactions among the factors, in the analysis of variance design, had trivial effects; normative data from this study has been presented for males and females, for grade eleven and twelve, for the PRF-E in Table 6.15 and for the BPI in Table 6.16.

In comparison to the normative data reported for the PRF-E for high school students by Jackson (1974) the norms reported here are comparable. Jackson (1974) reported two samples that vary on a few traits. The norms reported here for the PRF-E are within that tolerance and most of the departures are on traits that vary between the two normative

Table 6.15

PRF-E Normative Data

	Full Sample n=1,444			Males n=602		Females n=842	
PRF-E Variable	Mean	Standard Deviation	KR20	Mean	Standard Deviation	Mean	Standard Deviation
AB	7.144	2.683	.54	6.481	2.547	7.619	2.679
AC	8.887	3.260	.69	8.985	3.307	8.817	3.226
AF	10.208	3.158	.71	9.478	3.126	10.732	3.079
AG	8.990	3.279	.71	9.900	3.149	8.339	3.216
AU	7.094	3.098	.67	8.111	2.945	6.365	2.998
CH	9.047	2.716	.56	8.400	2.484	9.511	2.782
CS	8.272	2.841	.66	7.796	2.733	8.613	2.869
DE	7.448	3.189	.69	8.201	3.165	6.909	3.098
DO	7.347	3.994	.82	8.370	3.892	6.614	3.907
EN	8.433	3.176	.69	8.617	3.160	8.301	3.183
EX	7.252	4.077	.82	7.285	3.988	7.228	4.142
HA	7.884	4.115	.83	6.199	3.504	9.090	4.097
IM	7.869	3.506	.73	8.045	3.426	7.744	3.559
NU	10.108	3.405	.75	7.969	3.205	11.640	2.631
OR	7.237	4.308	.85	6.257	4.063	7.938	4.344
PL	10.233	2.759	.62	10.430	2.774	10.093	2.741
SE	8.416	3.241	.72	6.949	2.984	9.467	3.001

Table 6.15

Continued

	Full Sample			Males		Females	
	n=1,444			n=602		n=842	
PRF-E Variable	Mean	Standard Deviation	KR20	Mean	Standard Deviation	Mean	Standard Deviation
SR	9.136	3.075	.70	8.935	3.208	9.279	2.970
SU	7.789	3.539	.75	6.408	3.316	8.778	3.359
UN	5.725	3.130	.73	5.202	2.888	6.099	3.243
DY	9.242	2.878	.61	8.819	2.773	9.544	2.913

Table 6.16

BPI Normative Data

	Full Sample n=1,444			Males n=602		Females n=842	
BPI Variable	Mean	Standard Deviation	KR20	Mean	Standard Deviation	Mean	Standard Deviation
HYP	6.393	3.806	.77	5.564	3.328	6.987	4.011
DEP	4.944	3.533	.80	5.076	3.281	4.849	3.701
DEN	5.432	2.789	.61	5.891	2.954	5.103	2.618
INP	10.181	3.741	.72	11.290	3.515	9.387	3.698
SOD	6.642	3.575	.72	8.435	3.470	5.358	3.061
PEI	7.334	3.556	.73	7.799	3.383	7.011	3.642
ANX	8.301	3.085	.57	7.405	2.841	8.943	3.094
THD	5.283	3.385	.72	4.980	3.319	5.500	3.417
IME	10.174	3.880	.74	10.635	3.630	9.844	4.019
SOI	4.845	3.608	.79	5.881	3.831	4.103	3.245
SED	3.733	3.008	.73	4.053	3.214	3.504	2.830
DEV	5.043	2.710	.66	5.307	2.836	4.854	2.601

samples reported by Jackson (1974).

For the BPI, the norms reported here were compared to the normal and delinquent norms reported by Smiley (1977). The comparison is not as good as for the PRF-E since only one normal sample is reported. The norms reported here are generally more elevated than Smiley's (1977) normal norms (with the exception of Denial for males and Denial, Thinking Disorder and Social Introversion for females), but less elevated than his delinquent norms indicating an acceptable level of variation in adjustment.

CHAPTER SEVEN

RESULTS IN THE ENTITY SPACE

Introduction

The results reported in Chapter VI indicate that rural-urban, is relatively unimportant for variation in either personality or adjustment. Similarly, grade, migration and socioeconomic status are relatively unimportant. Sex, however, consistently contributed to variation in personality and adjustment. The effects of sex, although consistent, never surpass 13.7% explained variation when all explanatory variables are considered simultaneously which is in the analysis of variance design with Nurturance. The interactions, among the explanatory variables, are trivial indicating a linear model in which sex, and sex only, contributes to variation in personality and adjustment.

In this chapter a typological analysis is undertaken to classify people into types. It is possible that even though differences are only found for sex, that at a typological level the types of people may be different, i.e., the structure of personality or adjustment may be different across the rural-urban strata. Alternatively, even if the structure is not different, the frequency of types may be differentially distributed in rural and urban settings.

Similarly, grade, migration and social class may be differentially distributed among the types.

Since rural-urban differences are the focus of this thesis the preliminary samples are defined as the three rural-urban strata: farm, rural non-farm and urban. These strata are further subdivided, by sex since sex is found to be the primary source of variation, in personality and adjustment, among the explanatory set: grade, migration, residence, sex and social class. Consequently, six preliminary samples (farm males, farm females, rural non-farm males, rural non-farm females, urban males, urban females) are entered into the Modal Profile Analysis.

Within Sample Analysis

Each of the three rural-urban strata, partitioned into male and female groups, are treated as separate samples for both the PRF-E and BPI analyses. The preliminary attribute standardization utilized the norms reported at the end of Chapter VI for males and females for the BPI and PRF-E. Then for the PRF-E and BPI analyses each of the samples are row standardized and rescaled by the reciprocal of the square root of the number of attributes to make the analysis consistent with a Q type factor analysis of an entity correlation matrix. These rescaled data matices are then decomposed by the Eckart and Young (1936) theorem. Entity factors are produced by rescaling the left hand eigen vectors by their associated singular values. Five entity factors for the PRF-E and four entity factors for the BPI, for each sample (m = 6), are retained based on previous research. These entity factors are then rotated to a univocal varimax criterion (Jackson and Skinner, 1975) to orient the entity factors through homogeneous clusters of people. The entity factors are then projected into the attribute factor space by computing orthogonal factor scores which are the preliminary sample profiles. Finally, subjects in each of the preliminary samples are classified as belonging to a particular profile on the basis of highest loading above .50, in absolute value.

Personality

Social Desirability is included in the set of personality variables, as is the case in the canonical correlation analysis reported in Chapter VI. The preliminary sample profiles for the PRF-E, for males and females, are reported for the farm stratum in Table 7.1, for the rural non-farm stratum in Table 7.2 and for the urban stratum in Table 7.3. The standard PRF-E abbreviations are used (cf. Chapter VI) in the presentation of Tables 7.1 to 7.3.

The classification efficiency of the PRF-E preliminary sample profiles is 70.18% for farm males, 67.99% for farm females, 65.02% for rural non-farm males, 69.40% for rural non-farm females, 72.85% for urban males and 71.66% for

Table 7.1

PRF-E Preliminary Sample Profiles

For the Farm Stratum

PRF-E	Male Profiles n=228					Female Profiles n=278				
Variable	I	II	III	IV	V	I	II	III	IV	V
AB	60	70	68	65	52	51	68	39	30	37
AC	54	55	48	39	67	37	56	57	51	50
AF	40	43	63	49	58	50	45	27	59	54
AG	45	43	35	60	53	65	43	64	51	47
AU	47	70	30	53	45	46	36	57	30	60
CH	48	59	48	44	30	44	44	51	39	49
CS	67	45	46	41	46	47	61	59	59	59
DE	53	38	29	56	53	64	47	68	52	54
DO	38	43	44	34	56	41	35	57	61	41
EN	51	62	48	41	67	37	56	51	43	52
EX	34	44	56	46	53	47	33	43	66	49
HA	71	46	48	64	54	65	61	48	51	72
IM	40	54	48	71	51	64	40	48	35	46
NU	46	50	66	49	52	45	59	43	52	39
OR	65	45	52	44	50	46	58	51	51	67
PL	34	51	51	63	51	61	38	30	45	50
SE	42	53	54	44	28	39	48	53	53	36

Table 7.1

Continued

PRF-E Variable	Male Profiles I	II	III	IV	V	Female Profiles I	II	III	IV	V
SR	53	31	55	52	47	58	58	55	62	37
SU	56	35	60	55	39	64	62	46	60	39
UN	53	57	46	38	36	42	53	60	43	47
DY	53	55	54	40	60	38	51	42	56	66
Explained Variance:			56.25%					55.69%		

Note: Scaled to a mean of 50 and standard deviation of 10.

Table 7.2

PRF-E Preliminary Sample Profiles
For the Rural Non-Farm Stratum

PRF-E	Male Profiles n=223					Female Profiles n=317				
Variable	I	II	III	IV	V	I	II	III	IV	V
AB	47	63	60	26	58	30	56	44	37	47
AC	32	47	43	49	45	60	62	43	46	48
AF	48	56	61	47	32	43	53	68	57	61
AG	62	45	34	54	44	59	32	46	52	45
AU	48	28	43	33	59	57	47	42	29	59
CH	48	41	57	49	56	57	55	55	40	52
CS	43	58	39	58	53	52	58	41	66	50
DE	65	45	38	62	49	61	33	39	58	56
DO	49	41	53	62	42	68	51	56	53	51
EN	35	49	44	45	56	56	64	47	43	49
EX	50	43	57	59	34	61	46	70	58	54
HA	56	66	35	46	65	37	48	30	66	64
IM	68	43	48	33	48	45	33	49	33	52
NU	45	56	63	51	49	36	57	62	50	56
OR	40	57	35	57	54	51	59	42	65	50
PL	62	44	56	40	42	42	37	64	48	57
SE	51	43	70	59	64	48	51	57	45	15

Table 7.2

Continued

PRF-E	Male					Female				
	Profiles					Profiles				
Variable	I	II	III	IV	V	I	II	III	IV	V
SR	61	61	50	56	44	48	44	48	62	42
SU	59	69	59	55	52	34	42	46	60	37
UN	47	41	56	63	73	57	59	43	42	47
DY	34	52	46	46	41	47	64	56	51	58
Explained Variance:			54.02%					55.64%		

Note: Scaled to a mean of 50 and standard deviation of 10.

Table 7.3

PRF-E Preliminary Sample Profiles For the Urban Stratum

	Male Profiles n=151					Female Profiles n=247				
PRF-E Variable	I	II	III	IV	V	I	II	III	IV	V
AB	26	45	62	59	41	35	61	37	67	55
AC	42	52	39	55	61	45	54	47	32	53
AF	47	64	63	37	62	52	43	66	61	63
AG	68	38	52	45	54	64	50	51	53	31
AU	54	37	53	74	57	57	72	54	55	39
CH	53	57	46	63	43	55	63	43	37	55
CS	52	51	32	42	48	41	41	60	46	35
DE	68	36	42	46	48	59	45	51	52	33
DO	62	62	46	53	59	60	44	63	38	55
EN	45	51	42	62	56	39	57	52	40	49
EX	54	61	58	48	59	64	41	60	46	60
HA	35	25	45	38	51	41	38	46	62	36
IM	54	39	70	53	51	65	60	41	64	52
NU	39	56	52	46	39	40	51	53	60	64
OR	45	48	34	46	49	34	47	55	49	40
PL	56	48	67	51	52	60	53	58	63	59
SE	57	62	52	58	28	49	56	39	43	56

Table 7.3

Continued

PRF-E	Male					Female				
	Profiles					Profiles				
Variable	I	II	III	IV	V	I	II	III	IV	V
SR	55	50	53	40	48	58	31	28	42	55
SU	49	52	54	30	36	48	34	35	55	53
UN	51	56	41	56	37	46	60	48	38	46
DY	40	59	47	47	71	39	48	64	48	58
Explained Variance:			55.03%					56.11%		

Note: Scaled to a mean of 50 and standard deviation of 10.

urban females. Thus the range for within sample classification efficiency for the PRF-E preliminary profiles is quite narrow (65.02% to 72.85%) and substantial (mean = 69.52%), indicating that a five factor solution is quite adequate for each sample.

Adjustment

Deviation, the critical item scale for the BPI, is not included in the set of adjustment variables, as is the case in the canonical correlation analysis reported in Chapter VI since Deviation is used for clinical interpretation and consequently should not effect the positioning of the profiles for the BPI. The preliminary sample profiles for the BPI, for males and females, are reported for the farm stratum in Table 7.4, for the rural non-farm stratum in Table 7.5 and for the urban stratum in Table 7.6. The standard BPI abbreviations have been used to denote the BPI trait names (cf. Chapter VI) in the presentation of Tables 7.4 to 7.6.

The classification efficiency of the BPI preliminary sample profiles is 81.14% for farm males, 79.14% for farm females, 76.68% for rural non-farm males, 78.86% for rural non-farm females, 80.79% for urban males and 78.95% for urban females. Thus the range for within sample classification efficiency for the BPI preliminary profiles is quite narrow (76.68% to 81.14%) and substantial (mean =

Table 7.4

BPI Preliminary Sample Profiles

For the Farm Stratum

	Male Profiles n=228				Female Profiles n=278			
BPI Variable	I	II	III	IV	I	II	III	IV
HYP	47	63	39	52	45	41	43	42
DEP	53	59	54	54	45	42	58	49
DEN	69	32	47	48	78	53	40	47
INP	37	49	62	64	46	55	51	72
SOD	40	33	43	57	51	63	46	58
PEI	49	59	44	61	48	40	43	64
ANX	47	58	45	29	44	36	45	47
THD	52	48	33	52	47	50	39	38
IME	34	42	59	36	40	71	50	42
SOI	62	53	66	53	59	45	73	50
SED	58	54	58	44	49	53	63	41
Explained Variance:	60.86%				59.39%			

Note: Scaled to a mean of 50 and standard deviation of 10.

Table 7.5

BPI Preliminary Sample Profiles
For the Rural Non-Farm Stratum

	Male Profiles n=223				Female Profiles n=317			
BPI Variable	I	II	III	IV	I	II	III	IV
HYP	45	49	55	37	58	46	62	42
DEP	45	38	44	50	50	38	47	45
DEN	36	69	50	69	72	63	42	65
INP	70	45	56	65	34	56	52	57
SOD	62	49	46	56	45	67	51	33
PEI	52	44	59	47	55	45	56	41
ANX	47	47	67	45	50	33	58	61
THD	42	53	61	47	55	55	62	49
IME	63	70	41	34	35	57	54	63
SOI	44	45	34	52	47	46	28	43
SED	45	40	38	47	49	44	38	51
Explained Variance:	59.41%				60.61%			

Note: Scaled to a mean of 50 and standard deviation of 10.

Table 7.6

BPI Preliminary Sample Profiles

For the Urban Stratum

BPI Variable	Male Profiles n=151				Female Profiles n=247			
	I	II	III	IV	I	II	III	IV
HYP	44	59	44	43	50	46	67	53
DEP	37	56	64	45	49	39	47	42
DEN	50	26	40	38	32	74	53	45
INP	64	45	55	69	58	52	40	65
SOD	71	53	52	39	70	60	44	35
PEI	47	50	43	67	55	42	58	42
ANX	45	54	45	59	44	43	56	64
THD	46	55	31	47	53	51	66	47
IME	61	63	53	43	58	58	45	66
SOI	47	39	65	50	40	43	37	44
SED	40	51	59	48	42	42	39	47
Explained Variance:		61.85%				61.44%		

Note: Scaled to a mean of 50 and standard deviation of 10.

79.26), indicating that a four factor solution is quite adequate for each sample.

Replication Across Samples

The preliminary sample profiles are replicated across all samples with a factor extension procedure (cf. Dwyer, 1937; Khan, 1973) and then subjects in each sample are classified on the basis of highest loading in absolute value above .50. Congruence in structure between samples from the within sample orientation is evaluated with a procedure suggested by Wrigley and Neuhaus (1955). Finally, Modal Profiles, are derived through generalized canonical correlations of the preliminary sample profiles. Factors are retained on the basis of generalized canonical correlations greater than zero and rotated to a univocal varimax criterion. Then Modal Profiles are produced by projecting these factors into the attribute factor space by computing factor scores.

Personality

The classification efficiency for the preliminary PRF-E sample profiles, across samples, is presented in Table 7.7. The cross sample replication (off diagonal elements) ranges between 55.04% and 61.59% with a mean of 59.00% indicating a high degree of replication across samples since the within sample classification efficiency (diagonal elements of Table 7.7) ranges between 65.02% and 72.85%. Cross sample congruency is presented in Table 7.8. The congruency between samples ranges between .78 and .90 with a mean of .83 indicating a high degree of similarity in structure between samples.

The number of PRF-E Modal Profiles to retain is determined on the basis of generalized canonical correlations greater than zero between the preliminary sample profiles, F less than 1.0. Four factors are retained on the basis of the fit guidline. The values for F for the first four factors are: .0718, .1294, .2392, .3596. PRF-E Modal Profiles are presented in Table 7.9.

Adjustment

The classification efficiency for the preliminary BPI sample profiles, across samples, is presented in Table 7.10. The range of cross-sample classification efficiency is 66.37% to 81.14% with a mean of 73.27% which is quite excellent, considering that the within sample classification efficiency (diagonal elements of Table 7.10) ranges between 76.68% and 81.14%. Cross sample congruency is presented in Table 7.11. The cross sample congruency ranges between .69 and .93 with a mean of .76 thus indicating consistency in the structure of adjustment across samples.

The number of BPI Modal Profiles to retain is

Table 7.7

Cross Classification Efficiency of PRF-E Preliminary Sample Profiles

Profile Sample	Data Sample FM	FF	RM	RF	UM	UF
FM	70.18%	55.04%	60.79%	59.31%	61.59%	59.11%
FF	60.53%	67.99%	61.43%	59.94%	58.28%	57.49%
RM	60.53%	57.91%	65.02%	59.62%	59.60%	59.92%
RF	60.96%	60.07%	56.05%	69.40%	60.26%	61.54%
UM	61.40%	58.63%	54.71%	60.57%	72.85%	60.32%
UF	61.40%	53.96%	55.16%	57.73%	56.29%	71.66%

Note:

FM = Farm Males

FF = Farm Females

RM = Rural Non-Farm Males

RF = Rural Non-Farm Females

UM = Urban Males

UF = Urban Females

Table 7.8

Cross Sample Congruence of PRF-E Preliminary Sample Profiles

	FM	FF	RM	RF	UM	UF
FM	1.00	.90	.88	.78	.80	.78
FF		1.00	.90	.80	.81	.78
RM			1.00	.82	.83	.78
RF				1.00	.84	.85
UM					1.00	.83
UF						1.00

Average Congruency = .83

Note:

FM = Farm Males
FF = Farm Females
RM = Rural Non-Farm Males
RF = Rural Non-Farm Females
UM = Urban Males
UF = Urban Females

Table 7.9

PRF-E Modal Profiles

Derived From Six Samples

PRF-E Variable	I	II	III	IV
Abasement	58	58	29	68
Achievement	35	48	49	52
Affiliation	52	68	50	42
Aggression	61	37	62	45
Autonomy	51	38	60	73
Change	45	52	56	60
Cognitive Structure	40	39	43	39
Defendence	58	32	59	41
Dominance	40	53	66	43
Endurance	37	49	48	58
Exhibition	49	62	64	40
Harm Avoidance	59	34	32	46
Impulsivity	70	50	56	62
Nurturance	49	64	41	50
Order	41	41	40	44
Play	64	60	58	53
Sentience	47	59	54	55
Social Recognition	57	51	48	36
Succorance	61	55	39	37
Understanding	40	45	51	57

Table 7.9

Continued

PRF-E

Variable	I	II	III	IV
Social Desirability	37	56	46	48

Note: Scaled to a mean of 50 and standard deviation of 10.

determined on the basis of generalized canonical correlations greater than zero between the preliminary sample profiles, F less than 1.0. Three factors are retained on the basis of the fit guidline. The values for F for the first three factors are: .0837, .2000, .5083. BPI Modal Profiles are presented in Table 7.12.

Generalizability of the Modal Profiles

Subjects classified as belonging to the PRF-E and BPI Modal Profiles on the basis of highest loading above .50 are classified as belonging to either the positive or negative pole. First classification efficiency in each of the preliminary samples is determined. Then membership on the positive or negative poles is crosstabulated against grade, migration, residence, sex and social class to discern whether or not profile membership is independendent of membership on the various levels of the explanatory variables, e.g., by knowing the sex of a respondent can profile membership be predicted?

The chi square (X^2) test of independence is used to determine independence and if the chi square statistic is significant at the appropriate degrees of freedom the predictive accuracy of group membership is determined through the uncertainty coefficient since chi square is a function of sample size (cf. Hays, 1973).

Table 7.10

Cross Classification Efficiency of BPI Preliminary Sample Profiles

Profile Sample	Data Sample					
	FM	FF	RM	RF	UM	UF
FM	81.14%	74.10%	66.37%	73.82%	74.83%	72.87%
FF	73.25%	79.14%	69.06%	70.66%	74.17%	71.66%
RM	72.81%	72.30%	76.68%	71.29%	73.51%	72.47%
RF	76.32%	72.30%	69.06%	78.86%	73.51%	73.68%
UM	69.74%	72.30%	67.26%	70.98%	80.79%	67.61%
UF	76.75%	68.35%	71.30%	74.13%	75.50%	78.95%

Note:

FM = Farm Males
FF = Farm Females
RM = Rural Non-Farm Males
RF = Rural Non-Farm Females
UM = Urban Males
UF = Urban Females

Table 7.11

Cross Sample Congruence of BPI

Preliminary Sample Profiles

	FM	FF	RM	RF	UM	UF
FM	1.00	.69	.71	.76	.80	.79
FF		1.00	.79	.84	.69	.71
RM			1.00	.83	.69	.72
RF				1.00	.73	.72
UM					1.00	.93
UF						1.00

Average Congruency = .76

Note:

FM = Farm Males

FF = Farm Females

RM = Rural Non-Farm Males

RF = Rural Non-Farm Females

UM = Urban Males

UF = Urban Females

Table 7.12

BPI Modal Profiles

Derived From Six Samples

BPI Variable	I	II	III
Hypochondriasis	49	42	62
Depression	47	39	43
Denial	29	70	53
Interpersonal Problems	65	55	42
Social Deviation	60	64	49
Persecutory Ideas	52	43	56
Anxiety	50	39	59
Thinking Disorder	48	50	66
Impulse Expression	62	58	50
Social Introversion	42	46	31
Self Depreciation	45	44	39

Note: Scaled to a mean of 50 and standard deviation of 10.

Personality

For the four PRF-E Modal Profiles the classifaction efficiency is 61.40% for farm males, 62.95% for farm females, 60.09% for rural non-farm males, 63.09% for rural non-farm females, 58.94% for urban males, and 62.75% for urban females. The range is 58.94% to 63.09% and the mean is 61.54% indicating similarity in the structure of personality across rural-urban and across sex.

Crosstabulations of people classified as belonging to the four PRF-E Modal Profiles (positive and negative poles), on the basis of highest loading above .50, with grade, migration, residence, sex and social class are presented in Tables 8.13, 8.14, 8.15, 8.16 and 8.17 respectively. The chi square statistic for grade is non-significant, $X^2 = 8.396$, with 7 d.f., $p = .299$. For migration X^2 is equal to 20.759 which is non-significant with 28 d.f., $p = .835$. The X^2 for residence, however, is significant with 14 d.f., $p = .008$. The uncertainty coefficient for residence however, is only .008, indicating that profile membership can be very poorly predicted (.8% improvement) by knowing residence group. The X^2 for sex is 9.603 which with 7 d.f. is not significant ($p = .212$). For social class the X^2 is 42.524 with 28 d.f. which is significant at $p = .039$. The uncertainty coefficient however, for predicting profile membership from social class is only .012, indicating a proportionate reduction in error of predicting profile membership of only

Table 7.13

Crosstabulation of PRF-E Modal Profiles With Grade

Count Row % Column % Total %	Grade		Row Total
	11	12	
+I	92	87	179
	51.4	48.6	
	21.9	19.0	
	10.5	9.9	20.4%
-I	56	75	131
	42.7	57.3	
	13.3	16.4	
	6.4	8.5	14.9%
+II	39	39	78
	50.0	50.0	
	9.3	8.5	
	4.4	4.4	8.9%
-II	30	43	73
	41.1	58.9	
	7.1	9.4	
	3.4	4.9	8.3%
+III	62	49	111
	55.9	44.1	
	14.7	10.7	
	7.1	5.6	12.6%
-III	53	64	117
	45.3	54.7	
	12.6	14.0	
	6.0	7.3	13.3%
+IV	50	48	98
	51.0	49.0	
	11.9	10.5	
	5.7	5.5	11.1%
-IV	39	53	92
	42.4	57.6	
	9.3	11.6	
	4.4	6.0	10.5%
Column Total	421	458	879
	47.9%	52.1%	100%

Table 7.14

Crosstabulation of PRF-E Modal Profiles With Migration

Count Row % Column % Total %	Migration					Row Total
	1	2	3	4	5	
+I	58	40	40	17	18	173
	33.5	23.1	23.1	9.8	10.4	
	19.8	18.0	19.6	23.6	22.5	
	6.7	4.6	4.6	2.0	2.1	19.9%
-I	48	31	31	12	12	134
	35.8	23.1	23.1	9.0	9.0	
	16.4	14.0	15.2	16.7	15.0	
	5.5	3.6	3.6	1.4	1.4	15.4%
+II	24	20	24	7	4	79
	30.4	25.3	30.4	8.9	5.1	
	8.2	9.0	11.8	9.7	5.0	
	2.8	2.3	2.8	0.8	0.5	9.1%
-II	28	17	13	5	7	70
	40.0	24.3	18.6	7.1	10.0	
	9.6	7.7	6.4	6.9	8.8	
	3.2	2.0	1.5	0.6	0.8	8.0%
+III	29	31	30	13	11	114
	25.4	27.2	26.3	11.4	9.6	
	9.9	14.0	14.7	18.1	13.8	
	3.3	3.6	3.4	1.5	1.3	13.1%
-III	43	33	23	6	7	112
	38.4	29.5	20.5	5.4	6.3	
	14.7	14.9	11.3	8.3	8.8	
	4.9	3.8	2.6	0.7	0.8	12.9%
+IV	36	28	17	7	10	98
	36.7	28.6	17.3	7.1	10.2	
	12.3	12.6	8.3	9.7	12.5	
	4.1	3.2	2.0	0.8	1.1	11.3%
-IV	27	22	26	5	11	91
	29.7	24.2	28.6	5.5	12.1	
	9.2	9.9	12.7	6.9	13.8	
	3.1	2.5	3.0	0.6	1.3	10.4%
Column Total	293 33.6%	222 25.5%	204 23.4%	72 8.3%	80 9.2%	871 100%

Table 7.15

Crosstabulation of PRF-E Modal Profiles With Residence

Count Row % Column % Total %	Residence			Row Total
	1	2	3	
+I	67	61	52	180
	37.2	33.9	28.9	
	21.3	18.3	21.3	
	7.5	6.8	5.8	20.2%
-I	49	48	39	136
	36.0	35.3	28.7	
	15.6	14.4	16.0	
	5.5	5.4	4.4	15.2%
+II	22	36	21	79
	27.8	45.6	26.6	
	7.0	10.8	8.6	
	2.5	4.0	2.4	8.8%
-II	31	28	14	73
	42.5	38.4	19.2	
	9.8	8.4	5.7	
	3.5	3.1	1.6	8.2%
+III	29	41	44	114
	25.4	36.0	38.6	
	9.2	12.3	18.0	
	3.2	4.6	4.9	12.8%
-III	58	41	20	119
	48.7	34.5	16.8	
	18.4	12.3	8.2	
	6.5	4.6	2.2	13.3%
+IV	34	37	29	100
	34.0	37.0	29.0	
	10.8	11.1	11.9	
	3.8	4.1	3.2	11.2%
-IV	25	42	25	92
	27.2	45.7	27.2	
	7.9	12.6	10.2	
	2.8	4.7	2.8	10.3%
Column Total	315	334	244	893
	35.3%	37.4%	27.3%	100%

Table 7.16

Crosstabulation of PRF-E Modal Profiles With Sex

Count Row % Column % Total %	Sex		Row Total
	1	2	
+I	76	104	180
	42.2	57.8	
	20.9	19.6	
	8.5	11.6	20.2%
-I	55	81	136
	40.4	59.6	
	15.2	15.3	
	6.2	9.1	15.2%
+II	41	38	79
	51.9	48.1	
	11.3	7.2	
	4.6	4.3	8.8%
-II	30	43	73
	41.1	58.9	
	8.3	8.1	
	3.4	4.8	8.2%
+III	52	62	114
	45.6	54.4	
	14.3	11.7	
	5.8	6.9	12.8%
-III	41	78	119
	34.5	65.5	
	11.3	14.7	
	4.6	8.7	13.3%
+IV	36	64	100
	36.0	64.0	
	9.9	12.1	
	4.0	7.2	11.2%
-IV	32	60	92
	34.8	65.2	
	8.8	11.3	
	3.6	6.7	10.3%
Column Total	363	530	893
	40.6%	59.4%	100%

Table 7.17

Crosstabulation of PRF-E Modal Profiles With Social Class

Count Row % Column % Total %	Social Class 1	 2	 3	 4	 5	Row Total
+I	23 12.8 22.8 2.6	41 22.9 24.4 4.6	62 34.6 19.9 7.0	36 20.1 19.7 4.0	17 9.5 13.5 1.9	179 20.1%
-I	13 9.7 12.9 1.5	18 13.4 10.7 2.0	49 36.6 15.7 5.5	31 23.1 16.9 3.5	23 17.2 18.3 2.6	134 15.1%
+II	5 6.3 5.0 0.6	15 19.0 8.9 1.7	28 35.4 9.0 3.1	20 25.3 10.9 2.2	11 13.9 8.7 1.2	79 8.9%
-II	15 20.5 14.9 1.7	13 17.8 7.7 1.5	26 35.6 8.3 2.9	15 20.5 8.2 1.7	4 5.5 3.2 0.4	73 8.2%
+III	8 7.0 7.9 0.9	19 16.7 11.3 2.1	32 28.1 10.3 3.6	28 24.6 15.3 3.1	27 23.7 21.4 3.0	114 12.8%
-III	15 12.6 14.9 1.7	24 20.2 14.3 2.7	52 43.7 16.7 5.8	15 12.6 8.2 1.7	13 10.9 10.3 1.5	119 13.4%
+IV	9 9.0 8.9 1.0	20 20.0 11.9 2.2	36 36.0 11.5 4.0	19 19.0 10.4 2.1	16 16.0 12.7 1.8	100 11.2%
-IV	13 14.1 12.9 1.5	18 19.6 10.7 2.0	27 29.3 8.7 3.0	19 20.7 10.4 2.1	15 16.3 11.9 1.7	92 10.3%
Column Total	101 11.3	168 18.9	312 35.1	183 20.6	126 14.2	890 100%

1.19%. Thus, grade, migration, residence, sex and social class are independent of membership on the PRF-E Modal Profiles.

Adjustment

For the three BPI Modal Profiles the classification efficiency is 71.93% for farm males, 70.14% for farm females, 62.33% for rural non-farm males, 67.51% for rural non-farm females, 70.86% for urban males, 68.83% for urban females. The range is 62.33% to 71.93% and the mean is 68.60% indicating consistency in the structure of adjustment across rural-urban and across sex.

Crosstabulations of people classified as belonging to the three BPI Modal Profiles (positive and negative poles), on the basis of highest loading above .50, with grade, migration, residence, sex and social class are presented in Tables 8.18, 8.19, 8.20, 8.21 and 8.22 respectively.

The chi square statistic for grade is 10.782 which with 5 d.f. is marginally significant (p = .056). The uncertainty coefficient for grade is only .003, however, indicating a proportionate reduction of error for predicting BPI profile membership of only .3%. The X^2 for migration is 30.498 which with 20 d.f. is marginally significant at p = .062 but the uncertainty coefficient is only .009. With residence the X^2 = 21.262 with 10 d.f. and is significant at p = .019. The uncertainty coefficient for residence, however, is only .006

Table 7.18

Crosstabulation of BPI Modal Profiles With Grade

Count Row % Column % Total %	Grade		Row Total
	11	12	
+I	129 55.8 28.2 13.2	102 44.2 19.6 10.4	231 23.6%
-I	100 42.0 21.9 10.2	138 58.0 26.5 14.1	238 24.4%
+II	66 44.9 14.4 6.8	81 55.1 15.6 8.3	147 15.0%
-II	62 44.6 13.6 6.3	77 55.4 14.8 7.9	139 14.2%
+III	55 46.6 12.0 5.6	63 53.4 12.1 6.4	118 12.1%
-III	45 43.3 9.8 4.6	59 56.7 11.3 6.0	104 10.6%
Column Total	457 46.8%	520 53.2%	977 100%

Table 7.19

Crosstabulation of BPI Modal Profiles With Migration

Count Row % Column % Total %	Migration					Row Total
	1	2	3	4	5	
+I	65	55	59	25	24	228
	28.5	24.1	25.9	11.0	10.5	
	19.8	25.3	23.9	32.1	27.0	
	6.8	5.7	6.1	2.6	2.5	23.8%
-I	88	53	49	19	25	234
	37.6	22.6	20.9	8.1	10.7	
	26.7	24.4	19.8	24.4	28.1	
	9.2	5.5	5.1	2.0	2.6	24.4%
+II	39	41	43	14	10	147
	26.5	27.9	29.3	9.5	6.8	
	11.9	18.9	17.4	17.9	11.2	
	4.1	4.3	4.5	1.5	1.0	15.3%
-II	53	25	33	12	12	135
	39.3	18.5	24.4	8.9	8.9	
	16.1	11.5	13.4	15.4	13.5	
	5.5	2.6	3.4	1.2	1.2	14.1%
+III	50	23	27	4	11	115
	43.5	20.0	23.5	3.5	9.6	
	15.2	10.6	10.9	5.1	12.4	
	5.2	2.4	2.8	0.4	1.1	12.0%
-III	34	20	36	4	7	101
	33.7	19.8	35.6	4.0	6.9	
	10.3	9.2	14.6	5.1	7.9	
	3.5	2.1	3.7	0.4	0.7	10.5%
Column Total	329	217	247	78	89	960
	34.3%	22.6%	25.7%	8.1%	9.3%	100%

Table 7.20

Crosstabulation of BPI Modal Profiles With Residence

Count Row % Col % Total %	Residence 1	 2	 3	Row Total
+I	70	87	77	234
	29.9	37.2	32.9	
	19.5	24.6	27.8	
	7.1	8.8	7.8	23.7%
-I	101	89	51	241
	41.9	36.9	21.2	
	28.1	25.2	18.4	
	10.2	9.0	5.2	24.4%
+II	46	53	50	149
	30.9	35.6	33.6	
	12.8	15.0	18.1	
	4.7	5.4	5.1	15.1%
-II	51	57	33	141
	36.2	40.4	23.4	
	14.2	16.1	11.9	
	5.2	5.8	3.3	14.3%
+III	48	40	31	119
	40.3	33.6	26.1	
	13.4	11.3	11.2	
	4.9	4.0	3.1	12.0%
-III	43	27	35	105
	41.0	25.7	33.3	
	12.0	7.6	12.6	
	4.3	2.7	3.5	10.6%
Column Total	359 36.3%	353 35.7%	277 28.0%	989 100%

Table 7.21

Crosstabulation of BPI Modal Profiles With Sex

Count Row % Column % Total %	Sex		Row Total
	1	2	
+I	101	133	234
	43.2	56.8	
	24.6	23.0	
	10.2	13.4	23.7%
-I	104	137	241
	43.2	56.8	
	25.4	23.7	
	10.5	13.9	24.4%
+II	59	90	149
	39.6	60.4	
	14.4	15.5	
	6.0	9.1	15.1%
-II	51	90	141
	36.2	63.8	
	12.4	15.5	
	5.2	9.1	14.3%
+III	50	69	119
	42.0	58.0	
	12.2	11.9	
	5.1	7.0	12.0%
-III	45	60	105
	42.9	57.1	
	11.0	10.4	
	4.6	6.1	10.6%
Column Total	410	579	989
	41.5%	58.5%	100%

Table 7.22

Crosstabulation of BPI Modal Profiles With Social Class

Count Row % Column % Total %	Social Class					Row Total
	1	2	3	4	5	
+I	22	45	69	52	46	234
	9.4	19.2	29.5	22.2	19.7	
	20.0	24.2	20.0	26.1	31.7	
	2.2	4.6	7.0	5.3	4.7	23.8%
-I	32	39	101	40	27	239
	13.4	16.3	42.3	16.7	11.3	
	29.1	21.0	29.3	20.1	18.6	
	3.2	4.0	10.3	4.1	2.7	24.3%
+II	15	31	45	34	23	148
	10.1	20.9	30.4	23.0	15.5	
	13.6	16.7	13.0	17.1	15.9	
	1.5	3.1	4.6	3.5	2.3	15.0%
-II	15	31	49	28	17	140
	10.7	22.1	35.0	20.0	12.1	
	13.6	16.7	14.2	14.1	11.7	
	1.5	3.1	5.0	2.8	1.7	14.2%
+III	14	18	48	25	14	119
	11.8	15.1	40.3	21.0	11.8	
	12.7	9.7	13.9	12.6	9.7	
	1.4	1.8	4.9	2.5	1.4	12.1%
-III	12	22	33	20	18	105
	11.4	21.0	31.4	19.0	17.1	
	10.9	11.8	9.6	10.1	12.4	
	1.2	2.2	3.4	2.0	1.8	10.7%
Column Total	110	186	345	199	145	985
	11.2%	18.9%	35.0%	20.2%	14.7%	100%

which indicates poor improvement in prediction, .6%, based on residence group. The X^2 for sex is 2.503 which with 5 d.f. is not significant, $p = .776$. The X^2 for social class is also not significant ($p = .286$) which is 23.055 with 20 d.f. Thus the explanatory variables grade, migration, residence, sex and social class are independent of membership on the BPI Modal Profiles.

Summary

In this Chapter the rural-urban strata are partitioned by sex and the people in these strata are placed into homogeneous clusters, ideal types, for personality and adjustment. The ideal types of people identified in each of the six strata are evaluated for classification efficiency both within and across strata. The classification efficiency both within and across strata is quite high indicating satisfactory typologies within strata and generalizability across strata. The congruence in structure across strata is then evaluated and it is found that the structure across strata is quite similar, especially since structure is compared from preliminary sample orientation. Based on these results of similarity in structure across strata, population types or Modal Profiles are produced. Consistent with the cross sample replication and congruence of the preliminary profiles there is a high degree of generalizability of the Modal Profiles across samples. Finally, all subjects in all strata, are classified as belonging to one of the Modal Profiles (positive or negative pole) for both personality and adjustment. An analysis is then performed to find out the relationship between grade, migation, residence, sex and social class and profile membership. By knowing information about grade, migration, residence, sex or social class Modal Profile membership is unpredictable for both personality and adjustment.

Rural and urban ideal types are not identified in this analysis. Rather, ideal types are identified that replicate across rural-urban, grade, migration, sex and social class. On the basis of the results presented in this chapter it may be concluded that rural-urban ideal types exist only in the minds of philosophers.

CHAPTER EIGHT

DISCUSSION

Introduction

The outcome of the analyses reported in Chapter VI in the attribute space, examining the relationships between personality and adjustment with the explanatory set grade, migration, residence, sex and social class, indicate a linear model in which sex membership is responsible for variation in personality and adjustment. Grade, migration, residence and social class have trivial effects, directly and multiplicatively. These results are confirmed after stratifying by sex.

In the entity space (Chapter VII) after partitioning the rural-urban strata by sex homogeneous clusters of individuals are identified in each sample (m = 6) for personality and adjustment. The within sample classification efficiency indicates that adequate typologies have been developed. Replication across samples indicates generalizability of the preliminary profiles which is supported by a high degree of congruence in structure between samples. Population or Modal profiles are then developed through generalized canonical correlation procedures and the Modal Profiles demonstrate a high degree of generalizability across all samples. Membership on Modal

Profiles, however, is independent of grade, migration, residence, sex and social class.

Implications

The failure in this research to find any real differences for rural-urban could easily be interpreted in terms of Goulet's (1971) notion of vulnerability. Given a finite universe, rural is not distinct from urban, especially with modern communication and transport. Furthermore, the sample was obtained from public high schools and the curriculum for instruction is constant across rural-urban.

In other words, rural and urban may differ only in terms of population density and therefore scope of available activities (cf. Gertler and Crowley, 1977) or what Murray (1938) has called actones. The people are not different in terms of personality or adjustment only the range of available activities is different.

Similarly the failure of this research to find any real differences for grade, migration, or social class is that high school students are relatively homogeneous across these various groupings. Sex, however, consistently contributes to variation in personality and adjustment, although the strength of the relationship never surpasses 13.7% explained variation for sex when all of the explanatory variables are considered simultaneously. This is to be expected given the biological (cf. Wilson, 1978) as well as socialization (cf. Maccoby and Jacklin, 1974) differences associated with sex.

In the entity space the types as well as the distribution of grade, migration, residence, sex and social class within types does not differ. No structural differences is consistent with the work of Skinner, Jackson and Rampton (1976) on French and English differences. These authors, with large samples, compared the factor structure across French and English groups from their within sample varimax orientation with Tucker's (1951) coefficient of congruence. The factors between groups are collinear. The distribution of grade, migration, residence, sex and social class within types, in the current study, showing no differences is consistent with the homogoneity notions espoused in the previous paragraph.

These results, of no differences, across rural-urban, grade, migration, residence and social class, indicate a certain amount of consistency in personality and adjustment, a position that is opposed by some environmental theorists (cf. Bowers, 1973). In other words, these results indicate that people are people, there is variation across people (e.g., more than one type for personality and adjustment, and variances different from zero for all personality and adjustment traits) but the environment as assessed by rural-urban, grade, migration or social class is relatively unimportant. What seems to be important is learning (e.g., socialization) as well as biological influences as indicated by the consistent results for sex. The sex differences, however, are of degree rather than kind since sex is not differentially distributed among the types for personality and adjustment. Also different profiles among the male and female sub-groups are not identified since all sub-groups are highly congruent.

The implications of these results are that if behavior is different, in any way between rural and urban environments, it is due to the range of available activities rather than the nature of the individuals. A case in point is the differential occupational aspirations between rural and urban youths. This difference may be attributed to knowledge or opportunity rather than individual differences between rural and urban. The policy implications are consistent with those espoused by Husaine, Neff and Stone (1979) in a mental health context. Utilization is a function of availability and thus more resources should be allocated to rural areas in order to equalize the occupational attainments of rural youth.

Directions For Future Research

The evaluation of rural-urban differences and similarities in personality and adjustment falls under the general rubric of cross-cultural research. In this study population density is the index used for rural-urban and the study was undertaken in an industrial country. Other studies could use the focus of developed - less developed countries as an index of rural-urban. Further research also needs to be done on language and cultural differences in personality and adjustment.

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APPENDIX I

PRELIMINARY SAMPLE WITHIN EACH STRATUM

Rural Stratum I

Out of a total population of 141 schools 28 schools were selected for the preliminary sample. Of these 28 schools 19 paricipated in the study.

Alberta Location	Total Population	Sample Size
Rosemary	273	19
Winfield	100	9
Fox Creek	1765	16
Berwyn	463	16
Rosalind	185	11
Mundare	650	32
Grimshaw	1677	21
Crooked Creek	20	40
Legal	934	21
Warburg	490	20
New Norway	298	19
Caroline	450	44
Coronation	1338	51
Sangudo	435	14

Rural Stratum I

Continued

Alberta Location	Total Population	Sample Size
Condor	0	30
Chestermere	50	29
Spirit River	1020	40
Whitecourt	4056	45
Daysland	636	47

Rural Stratum II

Out of a total population of 39 schools 20 schools were selected for the preliminary sample. Of these 20 schools 12 participated.

Alberta Location	Total Population	Sample Size
Sedgewick	847	47
Coleman	1543	69
Lac La Biche	1934	30
Rimbey	1604	8
High Prairie	2281	20
Cochrane	1503	38
Peace River	5044	17
Wainright	3890	20
Rocky Mountain House	3548	26
Edson	4448	59
Vegreville	4158	24
Stettler	4182	38

Rural Stratum III

Out of a total population of 17 schools 10 schools were selected for the preliminary sample. Of these 10 schools 8 paricipated.

Alberta Location	Total Population	Sample Size
Lacombe	3965	31
St. Albert	25543	26
Westlock	3824	24
Wetaskiwin	7422	37
Ponoka	4636	45
Grand Centre	2780	41
Camrose	10593	41
Medicine Hat	33220	43

Urban Stratum (Calgary and Edmonton)

Out of a total population of 25 schools, 18 schools were selected. Of these 18 schools 4 participated, three from Calgary and one from Edmonton.

Alberta Location	Total Population	Sample Size
Calgary	487569	296
Edmonton	471474	92

APPENDIX II

OCCUPATIONAL PRESTIGE SCORES BY OCCUPATIONAL CLASSES

Derived From National Sample (n = 793)

From Pineo and Porter (1967)

(Reproduced by permission of Pineo and Porter)

Occupational Title	Score
Professional	
Accountant	63.4
Architect	78.1
Biologist	72.6
Catholic Priest	72.8
Chemist	73.5
Civil Engineer	73.1
County Court Judge	82.5
Druggist	69.3
Economist	62.2
High School Teacher	66.1
Lawyer	82.3
Mathematician	72.7
Mine Safety Analyst	57.1
Mining Engineer	68.1
Physician	87.2
Physicist	77.6
Protestant Minister	67.8
Psychologist	74.9

Appendix II

Continued

Occupational Title	Score
Public Grade School Teacher	59.6
University Professor	84.6
Veterinarian	66.7
Semi Professional	
Airplane Pilot	66.1
Author	64.8
Ballet Dancer	49.1
Chiropracter	68.4
Commercial Artist	57.2
Computer Programmer	53.8
Disc Jockey	38.0
Draughtsman	60.0
Funeral Director	54.9
Jazz Musician	40.9
Journalist	60.9
Medical or Dental Technician	67.5
Musician	52.1
Musician in Symphony Orchestra	56.0
Physiotherapist	72.1
Playground Director	42.8
Professional Athlete	54.1
Professionally Trained Forester	60.0

Appendix II

Continued

Occupational Title	Score
Professionally Trained Librarian	58.1
Registered Nurse	64.7
Research Technician	66.9
Sculptor	56.9
Social Worker	55.1
Surveyor	62.0
T.V. Announcer	57.6
T.V. Cameraman	48.3
T.V. Director	62.1
T.V. Star	65.6
YMCA Director	58.2
Proprietors, Mangers and Officials, Large	
Administrative Officer in Federal Civil Service	68.8
Advertising Executive	56.5
Bank Manager	70.9
Building Contractor	56.5
Colonel in the Army	70.8
Department Head in the City Government	71.3
General Manager of a Manufacturing Plant	69.1
Mayor of a Large City	79.9
Member of a Canadian Cabinet	83.3

Appendix II

Continued

Occupational Title	Score
Member of Canadian House of Commons	84.8
Member of Canadian Senate	86.1
Merchandise Buyer for a Department Store	51.1
Owner of a Manufacturing Plant	69.4
Provincial Premier	89.9
Wholesale Distributor	47.9
Proprietors, Managers and Officials, Small	
Advertising Copy Writer	48.9
Beauty Operator	35.2
Construction Foreman	51.1
Driving Instructor	41.6
Foreman in a Factory	50.9
Government Purchasing Agent	56.8
Insurance Claims Investigator	51.1
Job Counsellor	58.3
Livestock Buyer	39.6
Lunchroom Operator	31.6
Manager of a Real Estate Office	58.3
Manager of a Supermarket	52.5
Member of a City Council	62.9
Motel Owner	51.6
Owner of a Food Store	47.8

Appendix II

Continued

Occupational Title	Score
Public Relations Man	60.5
Railroad Ticket Agent	35.7
Sawmill Operator	37.0
Service Station Manager	41.5
Ship's Pilot	59.6
Superintendant of a Construction Job	53.9
Trade Union Business Agent	49.2
Travel Agent	46.6
Clerical and Sales	
Air Hostess	57.0
Bank Teller	42.3
Bill Collector	29.4
Bookkeeper	49.4
Cashier in a Supermarket	31.1
Clerk in an Office	35.6
File Clerk	32.7
IBM Keypunch Operator	47.7
Insurance Agent	47.3
Manufacturer's Representative	52.1
Post Office Clerk	37.2
Real Estate Agent	47.1
Receptionist	38.7

Appendix II

Continued

Occupational Title	Score
Sales Clerk in a Store	26.5
Shipping Clerk	30.9
Stenographer	46.0
Stockroom Attendant	25.8
Telephone Operator	38.1
Telephone Solicitor	26.7
Travelling Salesman	40.2
Truck Dispatcher	32.2
Typist	41.9
Used Car Salesman	31.2
Skilled	
Airplane Mechanic	50.3
Baker	38.9
Bricklayer	36.2
Butcher in a Store	34.8
Coal Miner	27.6
Cook in a Restaurant	29.7
Custom Seamstress	33.4
Diamond Driller	44.5
Electrician	50.2
House Carpenter	38.9
House Painter	29.9

Appendix II

Continued

Occupational Title	Score
Locomotive Engineer	48.9
Machinist	44.2
Machine Set-up Man in a Factory	42.1
Mucking Machine Operator	31.5
Plumber	42.6
Power Crane Operator	40.2
Power Lineman	40.9
Pumphouse Engineer	38.9
Railroad Brakeman	37.1
Railroad Conductor	45.3
Saw Sharpener	20.7
Sheet Metal Worker	35.9
T.V. Repairman	37.2
Tool and Die Maker	42.5
Typesetter	42.2
Welder	41.8
Semi-skilled	
Aircraft Worker	43.7
Apprentice to a Master Craftsman	33.9
Assembly Line Worker	28.2
Automobile Repairman	38.1
Automobile Worker	35.9

Appendix II

Continued

Occupational Title	Score
Barber	39.3
Bartender	20.2
Bookbinder	35.2
Bus Driver	35.9
Cod Fisherman	23.4
Firefighter	43.5
Fruit Packer in a Cannery	23.2
Logger	24.9
Longshoreman	26.1
Loom Operator	33.3
Machine Operator in a Factory	34.9
Newspaper Pressman	43.0
Oilfield Worker	35.3
Oiler in a Ship	27.6
Paper Making Machine Tender	31.6
Policeman	51.6
Private in the Army	28.4
Production Worker in the Electronics Industry	50.8
Professional Babysitter	25.9
Quarry Worker	26.7
Sewing Machine Operator	28.2
Steam Boiler Fireman	32.8

Appendix II

Continued

Occupational Title	Score
Steam Roller Operator	32.2
Steel Mill Worker	34.3
Textile Mill Worker	28.8
Timber Cruiser	40.3
Trailer Truck Driver	32.8
Troller	23.6
Worker in a Meat Packing Plant	25.2
Unskilled	
Carpenters Helper	23.1
Construction Laborer	26.5
Elevator Operator in a Building	20.1
Filling Station Attendant	23.3
Garbage Collector	14.8
Hospital Attendant	34.9
Housekeeper in a Private Home	28.8
Janitor	17.3
Laundress	19.3
Mailman	36.1
Museum Attendant	30.4
Newspaper Peddler	14.8
Railroad Sectionhand	27.3
Taxicab Driver	25.1

Appendix II

Continued

Occupational Title	Score
Waitress in a Restaurant	19.9
Warehouse Hand	21.3
Whistle Punk	18.4
Worker in a Dry Cleaning or Laundry Plant	20.8
Farmer	
Commercial Farmer	42.0
Dairy Farmer	44.2
Farm Labourer	21.5
Farm Owner and Operator	44.1
Hog Farmer	33.0
Part Time Farmer	25.1
Not In Labor Force	
Someone who lives off inherited wealth	45.8
Someone who lives off property holdings	48.7
Someone who lives off stocks and bonds	56.9
Someone who lives on relief	7.3

APPENDIX III

SOCIAL CLASSES DERIVED FROM PINEO AND PORTER OCCUPATIONAL PRESTIGE SCALE

Adapted From Pineo and Porter (1967)

Occupational Title	Score
Class I	
Someone Who Lives on Relief	7.3
Garbage Collector	14.8
Newspaper Peddler	14.8
Janitor	17.3
Whistle Punk	18.4
Laundress	19.3
Waitress in a Restaurant	19.9
Elevator Operator in a Building	20.1
Bartender	20.2
Saw Sharpener	20.7
Worker in a Dry Cleaning or Laundry Plant	20.8
Warehouse Hand	21.3
Farm Labourer	21.5
Carpenters Helper	23.1
Fruit Packer in a Cannery	23.2
Filling Station Attendant	23.3
Cod Fisherman	23.4
Troller	23.6
Logger	24.9

Appendix III

Continued

Occupational Title	Score
Part Time Farmer	25.1
Taxicab Driver	25.1
Worker in a Meat Packing Plant	25.2
Stockroom Attendant	25.8
Professional Babysitter	25.9
Longshoreman	26.1
Sales Clerk in a Store	26.5
Construction Laborer	26.5
Telephone Solicitor	26.7
Quarry Worker	26.7
Railroad Sectionhand	27.3
Coal Miner	27.6
Oiler in a Ship	27.6
Assembly Line Worker	28.2
Sewing Machine Operator	28.2
Private in the Army	28.4
Housekeeper in a Private Home	28.8
Textile Mill Worker	28.8
Bill Collector	29.4
Cook in a Restaurant	29.7
House Painter	29.9

Appendix III

Continued

Occupational Title	Score
Class II	
Museum Attendant	30.4
Shipping Clerk	30.9
Cashier in a Supermarket	31.1
Used Car Salesman	31.2
Mucking Machine Operator	31.5
Paper Making Machine Tender	31.6
Lunchroom Operator	31.6
Steam Roller Operator	32.2
Truck Dispatcher	32.2
File Clerk	32.7
Trailer Truck Driver	32.8
Steam Boiler Fireman	32.8
Hog Farmer	33.0
Loom Operator	33.3
Custom Seamstress	33.4
Apprentice to a Master Craftsman	33.9
Steel Mill Worker	34.3
Butcher in a Store	34.8
Hospital Attendant	34.9
Machine Operator in a Factory	34.9
Beauty Operator	35.2

Appendix III

Continued

Occupational Title	Score
Bookbinder	35.2
Oilfield Worker	35.3
Clerk in an Office	35.6
Railroad Ticket Agent	35.7
Automobile Worker	35.9
Sheet Metal Worker	35.9
Bus Driver	35.9
Mailman	36.1
Bricklayer	36.2
Sawmill Operator	37.0
Railroad Brakeman	37.1
Post Office Clerk	37.2
T.V. Repairman	37.2
Disc Jockey	38.0
Automobile Repairman	38.1
Telephone Operator	38.1
Receptionist	38.7
House Carpenter	38.9
Pumphouse Engineer	38.9
Baker	38.9
Barber	39.3
Livestock Buyer	39.6

Appendix III

Continued

Occupational Title	Score
Class III	
Travelling Salesman	40.2
Power Crane Operator	40.2
Timber Cruiser	40.3
Jazz Musician	40.9
Power Lineman	40.9
Service Station Manager	41.5
Driving Instructor	41.6
Welder	41.8
Typist	41.9
Commercial Farmer	42.0
Machine Set-up Man in a Factory	42.1
Typesetter	42.2
Bank Teller	42.3
Tool and Die Maker	42.5
Plumber	42.6
Playground Director	42.8
Newspaper Pressman	43.0
Firefighter	43.5
Aircraft Worker	43.7
Farm Owner and Operator	44.1
Machinist	44.2

Appendix III

Continued

Occupational Title	Score
Dairy Farmer	44.2
Diamond Driller	44.5
Railroad Conductor	45.3
Someone Who Lives off Inherited Wealth	45.8
Stenographer	46.0
Travel Agent	46.6
Real Estate Agent	47.1
Insurance Agent	47.3
IBM Keypunch Operator	47.7
Owner of a Food Store	47.8
Wholesale Distributor	47.9
T.V. Cameraman	48.3
Someone Who Lives off Property Holdings	48.7
Locomotive Engineer	48.9
Advertising Copy Writer	48.9
Ballet Dancer	49.1
Trade Union Business Agent	49.2
Bookkeeper	49.4

Appendix III

Continued

Occupational Title	Score
Class IV	
Electrician	50.2
Airplane Mechanic	50.3
Production Worker in the Electronics Industry	50.8
Foreman in a Factory	50.9
Merchandise Buyer for a Department Store	51.1
Insurance Claims Investigator	51.1
Construction Foreman	51.1
Policeman	51.6
Motel Owner	51.6
Musician	52.1
Manafacturer's Representative	52.1
Manager of a Supermarket	52.5
Computer Programmer	53.8
Superintendant of a Construction Job	53.9
Professional Athlete	54.1
Funeral Director	54.9
Social Worker	55.1
Musician in Symphony Orchestra	56.0
Building Contractor	56.5
Advertising Executive	56.5
Government Purchasing Agent	56.8

Appendix III

Continued

Occupational Title	Score
Someone Who Lives off Stocks and Bonds	56.9
Sculptor	56.9
Air Hostess	57.0
Mine Safety Analyst	57.1
Commercial Artist	57.2
T.V. Announcer	57.6
Professionally Trained Librarian	58.1
YMCA Director	58.2
Manager of a Real Estate Office	58.3
Job Counsellor	58.3
Ship's Pilot	59.6
Public Grade School Teacher	59.6
Class V	
Draughtsman	60.0
Professionally Trained Forester	60.0
Public Relations Man	60.5
Journalist	60.9
Surveyor	62.0
T.V. Director	62.1
Economist	62.2
Member of a City Council	62.9
Accountant	63.4

Appendix III

Continued

Occupational Title	Score
Registered Nurse	64.7
Author	64.8
T.V. Star	65.6
High School Teacher	66.1
Airplane Pilot	66.1
Veterinarian	66.7
Research Technician	66.9
Medical or Dental Technician	67.5
Protestant Minister	67.8
Mining Engineer	68.1
Chiropracter	68.4
Administrative Officer in Federal Civil Service	68.8
General Manager of a Manufacturing Plant	69.1
Druggist	69.3
Owner of a Manufacturing Plant	69.4
Colonel in the Army	70.8
Bank Manager	70.9
Department Head in the City Government	71.3
Physiotherapist	72.1
Biologist	72.6
Mathematician	72.7
Catholic Priest	72.8

Appendix III

Continued

Occupational Title	Score
Civil Engineer	73.1
Chemist	73.5
Psychologist	74.9
Physicist	77.6
Architect	78.1
Mayor of a Large City	79.9
Lawyer	82.3
County Court Judge	82.5
Member of a Canadian Cabinet	83.3
University Professor	84.6
Member of Canadian House of Commons	84.8
Member of Canadian Senate	86.1
Physician	87.2
Provincial Premier	89.9

APPENDIX IV

QUESTION BOOKLET AND ANSWER SHEET

The PRF-E and BPI are not included in this appendix for copyright reasons. The questionnaire is reduced for presentation in this appendix but the answer sheet is not reduced since it can not be reproduced with a photocopier.

QUESTION

BOOKLET

University of Alberta

DIRECTIONS

Read each question carefully before answering.

All questionnaires are strictly confidential.

Do not put your name on the question booklet or on the IBM Answer Sheet.

Record your answers on the IBM Answer Sheet with the pencil provided. Make all marks clearly within the guidelines.

PART ONE

Place your answers to the next set of questions in PART ONE of the IBM Answer Sheet.

PART ONE

1. Sex

   1) male

   2) female

2. What type of high school program are you in?

   1) diploma (business)

   2) diploma (general)

   3) matriculation

   4) vocational

3. Place your age in the two rows associated with question 3, the first digit is to be placed in the first row and the second digit is to be placed in the second row.

4. To what ethnic or cultural group are you descended from on your father's side? Place the code in the two rows associated with question 4, the first digit is to be placed in the first row and the second digit is to be placed in the second row. The ethnic or cultural groups have been arranged in alphabetical order.

Code	*Ethnic Group*
01	American
02	Australian
03	Belgian
04	Byelorussian
05	Canadian
06	Chinese
07	Croatian
08	Czech
09	Danish
10	English
11	Eskimo
12	Estonian
13	Finnish
14	French
15	German
16	Greek
17	Hungarian
18	Icelandic
19	Indo-Pakistani
20	Irish
21	Italian
22	Japanese
23	Jewish
24	Latvian
25	Lithuanian
26	Native Indian (Band)
27	Native Indian (Non-band)
28	Negro
29	Netherlands
30	Norwegian
31	Other Asiatic
32	Other British Isles
33	Other East Indian
34	Other European
35	Other Yugoslav
36	Polish
37	Portuguese
38	Romanian
39	Russian
40	Scottish
41	Serbian
42	Slovak
43	Spanish
44	Swedish
45	Syrian-Lebanese
46	Ukrainian
47	Welsh
48	West Indian
49	Yugoslav
50	Other

5. What is your religion? Place the code associated with your religion in the two rows associated with question 5. The religions have been arranged in alphabetical order.

Code	*Religion*
01	Adventist
02	Anglican
03	Baptist
04	Brethren in Christ
05	Buddhist
06	Christian and Missionary Alliance
07	Christian Reformed
08	Christian Science
09	Church of the Nazarene
10	Churches of Christ, Disciples
11	Confucian
12	Doukhobor
13	Evangelical United Brethren
14	Free Methodist
15	Greek Orthodox
16	Hutterite
17	Jehovah's Witnesses
18	Jewish
19	Lutheran
20	Mennonite
21	Mormon
22	No religion
23	Pentecostal
24	Plymouth Brethren
25	Presbyterian
26	Roman Catholic
27	Salvation Army
28	Ukrainian Catholic
29	Unitarian
30	United Church
31	Other

6. How far do you live from your school?

1) 1/2 mile or less
2) 1 mile or less
3) 2 miles or less
4) 3 miles or less
5) 4 miles or less
6) 5 miles or less
7) 10 miles or less
8) 15 miles or less
9) 20 miles or less
10) more than 20 miles

7. What is the size of the community in which you now live?

1) Live on an acreage or a farm
2) 1,000 or less
3) 2,500 or less
4) 5,000 or less
5) 10,000 or less
6) 15,000 or less
7) 25,000 or less
8) 50,000 or less
9) more than 50,000

8. When was the last time you moved?

1) 1 year or less
2) 2 years or less
3) 3 years or less
4) 4 years or less
5) 5 years or less
6) 6 years or less
7) 8 years or less
8) 10 years or less
9) more than 10 years
10) have not moved

9. The last time you moved, the move was

1) from an urban area to a rural area
2) from a rural area to an urban area
3) to another rural area
4) to another urban area

10. What type of area do you live in?

1) a rural area
2) an urban area

11. How long did you live in the community that you resided in prior to moving to your present location?

1) 1 year or less
2) 2 years or less
3) 3 years or less
4) 4 years or less
5) 5 years or less
6) 6 years or less
7) 8 years or less
8) 10 years or less
9) more than 10 years
10) did not move

12. How large was the community in which you lived prior to moving to your present location?

1) Did not move
2) Lived on an acreage or a farm
3) 1,000 or less
4) 2,500 or less
5) 5,000 or less
6) 10,000 or less
7) 15,000 or less
8) 25,000 or less
9) 50,000 or less
10) more than 50,000

13. Do you live in the same community in which your school is located?

1) Yes
2) No

14. Who is the major income earner in your family?

1) Father
2) Mother
3) Supported by relatives
4) Other

15. What is the total gross annual income of the major income earner of your family?

1) 5,000 or less
2) 10,000 or less
3) 15,000 or less
4) 20,000 or less
5) 25,000 or less
6) 30,000 or less
7) 35,000 or less
8) 40,000 or less
9) 45,000 or less
10) more than 45,000

16. Is the major income earner in your family self-employed?

1) Yes
2) No

17. If the major income earner in your family is self-employed, how many employees work there on a full time basis?

1) not self-employed
2) none
3) 2 or less
4) 4 or less
5) 6 or less
6) 8 or less
7) 10 or less
8) 15 or less
9) 20 or less
10) more than 20

18. What is the highest level of education achieved by the major income earner in your family?

1) grade 9 or less
2) less than grade 12
3) high school graduation
4) some technical/vocational
5) technical/vocational graduation
6) some university
7) university graduation
8) more than one university degree

19. What is the highest level of education achieved by your other parent or guardian?

1) only have one parent or guardian
2) grade 9 or less
3) less than grade twelve
4) high school graduation
5) some technical/vocational
6) technical/vocational graduation
7) some university
8) university graduation
9) more than one university degree

20. After completing your high school education, what are your career plans?

1) seek employment
2) technical/vocational training
3) university
4) other

21. What is the total gross annual income of your other parent or guardian?

1) my other parent or guardian does not work
2) I have only one parent or guardian
3) 2,500 or less
4) 5,000 or less
5) 10,000 or less
6) 15,000 or less
7) 20,000 or less
8) 25,000 or less
9) 30,000 or less
10) more than 30,000

22. How many brothers do you have?

1) none
2) one
3) two
4) three
5) four
6) five
7) six
8) seven
9) eight
10) more than eight

23. How many brothers do you have that are older than you?

1) none
2) one
3) two
4) three
5) four
6) five
7) six
8) seven
9) eight
10) more than eight

24. How many sisters do you have?
    1) none
    2) one
    3) two
    4) three
    5) four
    6) five
    7) six
    8) seven
    9) eight
    10) more than eight

25. How many sisters do you have that are older than you?
    1) none
    2) one
    3) two
    4) three
    5) four
    6) five
    7) six
    8) seven
    9) eight
    10) more than eight

26. Do you live on a farm?
    1) Yes
    2) No

27. Do you live at home with your parents?
    1) Yes
    2) Live with only one parent
    3) No, live with guardian(s)
    4) No, live on my own

28. Fill in the code associated with the occupations, listed below, of the occupation of the major income earner of your family. Place the first digit in the first row, the second digit in the second row and the third digit in the third row. To make it easier for you to find the correct ocupation, the occupations have been grouped alphabetically under the headings: Proprietors, Managers and Officials, Small; Semi Professional; Unskilled; Proprietors, Mangers and Officials, Large; Not in Labor Force; Semi-skilled; Clerical and Sales; Professional; Farmer; Skilled. If you are not able to find an exact occupation choose the occupation that best approximates the occupation of the major income earner of your family.

OCCUPATIONS

Code	*Occupational Title*
Proprietors, Managers and Officials, Small	
100	Advertising Copy Writer
101	Beauty Operator
102	Construction Foreman
103	Driving Instructor
104	Foreman in a Factory
105	Government Purchasing Agent
106	Insurance Claims Investigator
107	Job Counsellor
108	Livestock Buyer
109	Lunchroom Operator
110	Manager of a Real Estate Office
111	Manager of a Supermarket
112	Member of a City Council
113	Motel Owner
114	Owner of a Food Store
115	Public Relations Man
116	Railroad Ticket Agent
117	Sawmill Operator
118	Service Station Manager
119	Ship's Pilot
120	Superintendent of a Construction Job
121	Trade Union Business Agent
122	Travel Agent

Semi Professional

200	Airplane Pilot
201	Author
202	Ballet Dancer
203	Chiropractor
204	Commercial Artist
205	Computer Programmer
206	Disc Jockey
207	Draughtsman
208	Funeral Director
209	Jazz Musician
210	Journalist
211	Medical or Dental Technician
212	Musician
213	Musician in a Symphony Orchestra
214	Physiotherapist
215	Playground Director
216	Professional Athelete
217	Professionally Trained Forester
218	Professionally Trained Librarian
219	Registered Nurse
220	Research Technician
221	Sculptor
222	Social Worker
223	Surveyor
224	T.V. Announcer
225	T.V. Cameraman
226	T.V. Director
227	T.V. Star
228	YMCA Director

Unskilled

300	Carpenter's Helper
301	Construction Laborer
302	Elevator Operator in a Building
303	Filling Station Attendant
304	Garbage Collector
305	Hospital Attendant
306	Housekeeper in a Private Home
307	Janitor
308	Laundress
309	Mailman
310	Museum Attendant
311	Newspaper Peddler
312	Railroad Sectionhand
313	Taxicab Driver
314	Waitress in a Restaurant
315	Warehouse Hand
316	Whistle Punk
317	Worker in a Dry Cleaning or Laundry Plant

Proprietors, Managers and Officials, Large

400	Administrative Officer in Federal Civil Service
401	Advertising Executive
402	Bank Manager
403	Building Contractor
404	Colonel in the Army
405	Department Head in the City Government
406	General Manager of a Manufacturing Plant
407	Mayor of a Large City
408	Member of Canadian Cabinet
409	Member of Canadian House of Commons
410	Member of Canadian Senate
411	Merchandise Buyer for a Department Store
412	Owner of a Manufacturing Plant
413	Provincial Premier
414	Wholesale Distributor

Not in Labor Force

446	Someone who lives off inherited wealth
447	Someone who lives off property holdings
448	Someone who lives of stocks and bonds
449	Someone who lives on relief

Semi-skilled

500	Aircraft Worker
501	Apprentice to a Master Craftsman
502	Assembly Line Worker
503	Automobile Repairman
504	Automobile Worker
505	Barber
506	Bartender
507	Book Binder
508	Bus Driver
509	Cod Fisherman
510	Firefighter
511	Fruit Packer in a Cannery
512	Logger
513	Longshoreman
514	Loom Operator
515	Machine Operator in a Factory
516	Newspaper Pressman
517	Oil Field Worker
518	Oiler in a Ship
519	Paper Making Machine Attendant
520	Policeman
521	Private in the Army
522	Production Worker in the Electronics Industry
523	Professional Babysitter
524	Quarry Worker
525	Sewing Machine Operator
526	Steam Boiler Fireman
527	Steam Roller Operator
528	Steel Mill Worker
529	Textile Mill Worker
530	Timber Cruiser
531	Trailer Truck Driver
532	Troller
533	Worker in a Meat Packing Plant

Clerical and Sales

600	Air Hostess
601	Bank Teller
602	Bill Collector
603	Bookkeeper
604	Cashier in a Supermarket
605	Clerk in an Office
606	File Clerk
607	IBM Keypunch Operator
608	Insurance Agent
609	Manufacturer's Representative
610	Post Office Clerk
611	Real Estate Agent
612	Receptionist
613	Sales Clerk in a Store
614	Shipping Clerk
615	Stenographer
616	Stockroom Attendant
617	Telephone Operator
618	Travelling Salesman
619	Truck Dispatcher
620	Typist
621	Used Car Salesman

Professional

700	Accountant
701	Architect
702	Biologist
703	Catholic Priest
704	Chemist
705	Civil Engineer
706	County Court Judge
707	Druggist
708	Economist
709	High School Teacher
710	Lawyer
711	Mathematician
712	Mine Safety Analyst
713	Mining Engineer
714	Physician
715	Physicist
716	Protestant Minister
717	Psychologist
718	Public Grade School Teacher
719	University Professor
720	Veterinarian

Farmer

800	Commercial Farmer
801	Dairy Farmer
802	Farm Laborer
803	Farm Owner and Operator
804	Hog Farmer
805	Part Time Farmer

Skilled

900	Airplane Mechanic
901	Baker
902	Bricklayer
903	Butcher in a Store
904	Coal Miner
905	Cook in a Restaurant
906	Custom Seamstress
907	Diamond Driller
908	Electrician
909	House Carpenter
910	House Painter
911	Locomotive Engineer
912	Machinist
913	Machine Set-up Man in a Factory
914	Mucking Machine Operator
915	Plumber
916	Power Crane Operator
917	Power Lineman
918	Pumphouse Engineer
919	Railroad Brakeman
920	Railroad Conductor
921	Saw Sharpener
922	Sheet Metal Worker
923	T.V. Repairman
924	Tool and Die Maker
925	Typesetter
926	Welder

29. When choosing the occupation of the major wage earner of your family

    1) an exact occupation was found

    2) an approximation was required

30. Now that you have filled in the occupation of the major wage earner of your family, fill in the code, associated with the occupations listed above, of your other parent or guardian. If you have only one parent or guardian, fill in the code 000; if your other parent or guardian does not work (for example is a housewife) fill in the code 001. Place the first digit in the first row, the second digit in the second row and the third digit in the third row.

31. When choosing the occupation of your other parent or guardian

    1) an exact occupation was found

    2) an approximation was required

32. Fill in the code, associated with the occupations, listed above, of the occupation that you plan to pursue after completing high school. If you do not plan to pursue an occupation enter the code 000. Place the first digit in the first row, the second digit in the second row and the third digit in the third row.

33. When choosing the occupation that you plan to pursue after completing high school

    1) an exact occupation was found

    2) an approximation was required

34. What grade are you in?

    1) grade 10

    2) grade 11

    3) grade 12

35. How many years have you been in high school?

    1) one

    2) two

    3) three

    4) four

    5) more than four

PART TWO

Place your answers to the next set of questions in PART TWO of the IBM Answer Sheet.

The PRF-E was positioned here.

PART THREE

Place your answers to the next set of questions in PART THREE of the IBM Answer Sheet.

The BPI was positioned here.

T0428

IBM ANSWER SHEET

PART ONE

1 ① ②   2 ① ② ③ ④

3 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪

4 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪

5 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪

6 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   7 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨   8 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   9 ① ② ③ ④   10 ① ②

11 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   12 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   13 ① ②   14 ① ② ③ ④   15 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

16 ① ②   17 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   18 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨   19 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨   20 ① ② ③ ④

21 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   22 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   23 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

24 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   25 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩   26 ① ②   27 ① ② ③ ④

28 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪

29 ① ②

30 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪

31 ① ②

32 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ / ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪

33 ① ②   34 ① ② ③   35 ① ② ③ ④ ⑤

PART TWO

T F	T F	T F	T F	T F	T F	T F	T F
1 ○ ○	49 ○ ○	97 ○ ○	145 ○ ○	193 ○ ○	241 ○ ○	289 ○ ○	337 ○ ○
2 ○ ○	50 ○ ○	98 ○ ○	146 ○ ○	194 ○ ○	242 ○ ○	290 ○ ○	338 ○ ○
3 ○ ○	51 ○ ○	99 ○ ○	147 ○ ○	195 ○ ○	243 ○ ○	291 ○ ○	339 ○ ○
4 ○ ○	52 ○ ○	100 ○ ○	148 ○ ○	196 ○ ○	244 ○ ○	292 ○ ○	340 ○ ○
5 ○ ○	53 ○ ○	101 ○ ○	149 ○ ○	197 ○ ○	245 ○ ○	293 ○ ○	341 ○ ○
6 ○ ○	54 ○ ○	102 ○ ○	150 ○ ○	198 ○ ○	246 ○ ○	294 ○ ○	342 ○ ○
7 ○ ○	55 ○ ○	103 ○ ○	151 ○ ○	199 ○ ○	247 ○ ○	295 ○ ○	343 ○ ○
8 ○ ○	56 ○ ○	104 ○ ○	152 ○ ○	200 ○ ○	248 ○ ○	296 ○ ○	344 ○ ○
9 ○ ○	57 ○ ○	105 ○ ○	153 ○ ○	201 ○ ○	249 ○ ○	297 ○ ○	345 ○ ○
10 ○ ○	58 ○ ○	106 ○ ○	154 ○ ○	202 ○ ○	250 ○ ○	298 ○ ○	346 ○ ○
11 ○ ○	59 ○ ○	107 ○ ○	155 ○ ○	203 ○ ○	251 ○ ○	299 ○ ○	347 ○ ○
12 ○ ○	60 ○ ○	108 ○ ○	156 ○ ○	204 ○ ○	252 ○ ○	300 ○ ○	348 ○ ○
13 ○ ○	61 ○ ○	109 ○ ○	157 ○ ○	205 ○ ○	253 ○ ○	301 ○ ○	349 ○ ○
14 ○ ○	62 ○ ○	110 ○ ○	158 ○ ○	206 ○ ○	254 ○ ○	302 ○ ○	350 ○ ○
15 ○ ○	63 ○ ○	111 ○ ○	159 ○ ○	207 ○ ○	255 ○ ○	303 ○ ○	351 ○ ○
16 ○ ○	64 ○ ○	112 ○ ○	160 ○ ○	208 ○ ○	256 ○ ○	304 ○ ○	352 ○ ○
17 ○ ○	65 ○ ○	113 ○ ○	161 ○ ○	209 ○ ○	257 ○ ○	305 ○ ○	
18 ○ ○	66 ○ ○	114 ○ ○	162 ○ ○	210 ○ ○	258 ○ ○	306 ○ ○	
19 ○ ○	67 ○ ○	115 ○ ○	163 ○ ○	211 ○ ○	259 ○ ○	307 ○ ○	
20 ○ ○	68 ○ ○	116 ○ ○	164 ○ ○	212 ○ ○	260 ○ ○	308 ○ ○	
21 ○ ○	69 ○ ○	117 ○ ○	165 ○ ○	213 ○ ○	261 ○ ○	309 ○ ○	
22 ○ ○	70 ○ ○	118 ○ ○	166 ○ ○	214 ○ ○	262 ○ ○	310 ○ ○	
23 ○ ○	71 ○ ○	119 ○ ○	167 ○ ○	215 ○ ○	263 ○ ○	311 ○ ○	
24 ○ ○	72 ○ ○	120 ○ ○	168 ○ ○	216 ○ ○	264 ○ ○	312 ○ ○	
25 ○ ○	73 ○ ○	121 ○ ○	169 ○ ○	217 ○ ○	265 ○ ○	313 ○ ○	
26 ○ ○	74 ○ ○	122 ○ ○	170 ○ ○	218 ○ ○	266 ○ ○	314 ○ ○	
27 ○ ○	75 ○ ○	123 ○ ○	171 ○ ○	219 ○ ○	267 ○ ○	315 ○ ○	
28 ○ ○	76 ○ ○	124 ○ ○	172 ○ ○	220 ○ ○	268 ○ ○	316 ○ ○	
29 ○ ○	77 ○ ○	125 ○ ○	173 ○ ○	221 ○ ○	269 ○ ○	317 ○ ○	
30 ○ ○	78 ○ ○	126 ○ ○	174 ○ ○	222 ○ ○	270 ○ ○	318 ○ ○	
31 ○ ○	79 ○ ○	127 ○ ○	175 ○ ○	223 ○ ○	271 ○ ○	319 ○ ○	
32 ○ ○	80 ○ ○	128 ○ ○	176 ○ ○	224 ○ ○	272 ○ ○	320 ○ ○	
33 ○ ○	81 ○ ○	129 ○ ○	177 ○ ○	225 ○ ○	273 ○ ○	321 ○ ○	
34 ○ ○	82 ○ ○	130 ○ ○	178 ○ ○	226 ○ ○	274 ○ ○	322 ○ ○	
35 ○ ○	83 ○ ○	131 ○ ○	179 ○ ○	227 ○ ○	275 ○ ○	323 ○ ○	
36 ○ ○	84 ○ ○	132 ○ ○	180 ○ ○	228 ○ ○	276 ○ ○	324 ○ ○	
37 ○ ○	85 ○ ○	133 ○ ○	181 ○ ○	229 ○ ○	277 ○ ○	325 ○ ○	
38 ○ ○	86 ○ ○	134 ○ ○	182 ○ ○	230 ○ ○	278 ○ ○	326 ○ ○	
39 ○ ○	87 ○ ○	135 ○ ○	183 ○ ○	231 ○ ○	279 ○ ○	327 ○ ○	
40 ○ ○	88 ○ ○	136 ○ ○	184 ○ ○	232 ○ ○	280 ○ ○	328 ○ ○	
41 ○ ○	89 ○ ○	137 ○ ○	185 ○ ○	233 ○ ○	281 ○ ○	329 ○ ○	
42 ○ ○	90 ○ ○	138 ○ ○	186 ○ ○	234 ○ ○	282 ○ ○	330 ○ ○	
43 ○ ○	91 ○ ○	139 ○ ○	187 ○ ○	235 ○ ○	283 ○ ○	331 ○ ○	
44 ○ ○	92 ○ ○	140 ○ ○	188 ○ ○	236 ○ ○	284 ○ ○	332 ○ ○	
45 ○ ○	93 ○ ○	141 ○ ○	189 ○ ○	237 ○ ○	285 ○ ○	333 ○ ○	
46 ○ ○	94 ○ ○	142 ○ ○	190 ○ ○	238 ○ ○	286 ○ ○	334 ○ ○	
47 ○ ○	95 ○ ○	143 ○ ○	191 ○ ○	239 ○ ○	287 ○ ○	335 ○ ○	
48 ○ ○	96 ○ ○	144 ○ ○	192 ○ ○	240 ○ ○	288 ○ ○	336 ○ ○	

PART THREE

					OFFICE USE
T F	T F	T F	T F	T F	
1 ○ ○	49 ○ ○	97 ○ ○	145 ○ ○	193 ○ ○	○ ○
2 ○ ○	50 ○ ○	98 ○ ○	146 ○ ○	194 ○ ○	○ ○
3 ○ ○	51 ○ ○	99 ○ ○	147 ○ ○	195 ○ ○	○ ○
4 ○ ○	52 ○ ○	100 ○ ○	148 ○ ○	196 ○ ○	○ ○
5 ○ ○	53 ○ ○	101 ○ ○	149 ○ ○	197 ○ ○	○ ○
6 ○ ○	54 ○ ○	102 ○ ○	150 ○ ○	198 ○ ○	○ ○
7 ○ ○	55 ○ ○	103 ○ ○	151 ○ ○	199 ○ ○	○ ○
8 ○ ○	56 ○ ○	104 ○ ○	152 ○ ○	200 ○ ○	○ ○
9 ○ ○	57 ○ ○	105 ○ ○	153 ○ ○	201 ○ ○	○ ○
10 ○ ○	58 ○ ○	106 ○ ○	154 ○ ○	202 ○ ○	○ ○
11 ○ ○	59 ○ ○	107 ○ ○	155 ○ ○	203 ○ ○	○ ○
12 ○ ○	60 ○ ○	108 ○ ○	156 ○ ○	204 ○ ○	○ ○
13 ○ ○	61 ○ ○	109 ○ ○	157 ○ ○	205 ○ ○	○ ○
14 ○ ○	62 ○ ○	110 ○ ○	158 ○ ○	206 ○ ○	○ ○
15 ○ ○	63 ○ ○	111 ○ ○	159 ○ ○	207 ○ ○	○ ○
16 ○ ○	64 ○ ○	112 ○ ○	160 ○ ○	208 ○ ○	○ ○
17 ○ ○	65 ○ ○	113 ○ ○	161 ○ ○	209 ○ ○	○ ○
18 ○ ○	66 ○ ○	114 ○ ○	162 ○ ○	210 ○ ○	○ ○
19 ○ ○	67 ○ ○	115 ○ ○	163 ○ ○	211 ○ ○	○ ○
20 ○ ○	68 ○ ○	116 ○ ○	164 ○ ○	212 ○ ○	○ ○
21 ○ ○	69 ○ ○	117 ○ ○	165 ○ ○	213 ○ ○	○ ○
22 ○ ○	70 ○ ○	118 ○ ○	166 ○ ○	214 ○ ○	○ ○
23 ○ ○	71 ○ ○	119 ○ ○	167 ○ ○	215 ○ ○	○ ○
24 ○ ○	72 ○ ○	120 ○ ○	168 ○ ○	216 ○ ○	○ ○
25 ○ ○	73 ○ ○	121 ○ ○	169 ○ ○	217 ○ ○	○ ○
26 ○ ○	74 ○ ○	122 ○ ○	170 ○ ○	218 ○ ○	○ ○
27 ○ ○	75 ○ ○	123 ○ ○	171 ○ ○	219 ○ ○	○ ○
28 ○ ○	76 ○ ○	124 ○ ○	172 ○ ○	220 ○ ○	○ ○
29 ○ ○	77 ○ ○	125 ○ ○	173 ○ ○	221 ○ ○	○ ○
30 ○ ○	78 ○ ○	126 ○ ○	174 ○ ○	222 ○ ○	○ ○
31 ○ ○	79 ○ ○	127 ○ ○	175 ○ ○	223 ○ ○	○ ○
32 ○ ○	80 ○ ○	128 ○ ○	176 ○ ○	224 ○ ○	○ ○
33 ○ ○	81 ○ ○	129 ○ ○	177 ○ ○	225 ○ ○	○ ○
34 ○ ○	82 ○ ○	130 ○ ○	178 ○ ○	226 ○ ○	○ ○
35 ○ ○	83 ○ ○	131 ○ ○	179 ○ ○	227 ○ ○	○ ○
36 ○ ○	84 ○ ○	132 ○ ○	180 ○ ○	228 ○ ○	○ ○
37 ○ ○	85 ○ ○	133 ○ ○	181 ○ ○	229 ○ ○	○ ○
38 ○ ○	86 ○ ○	134 ○ ○	182 ○ ○	230 ○ ○	○ ○
39 ○ ○	87 ○ ○	135 ○ ○	183 ○ ○	231 ○ ○	○ ○
40 ○ ○	88 ○ ○	136 ○ ○	184 ○ ○	232 ○ ○	○ ○
41 ○ ○	89 ○ ○	137 ○ ○	185 ○ ○	233 ○ ○	○ ○
42 ○ ○	90 ○ ○	138 ○ ○	186 ○ ○	234 ○ ○	○ ○
43 ○ ○	91 ○ ○	139 ○ ○	187 ○ ○	235 ○ ○	○ ○
44 ○ ○	92 ○ ○	140 ○ ○	188 ○ ○	236 ○ ○	○ ○
45 ○ ○	93 ○ ○	141 ○ ○	189 ○ ○	237 ○ ○	○ ○
46 ○ ○	94 ○ ○	142 ○ ○	190 ○ ○	238 ○ ○	○ ○
47 ○ ○	95 ○ ○	143 ○ ○	191 ○ ○	239 ○ ○	○ ○
48 ○ ○	96 ○ ○	144 ○ ○	192 ○ ○	240 ○ ○	○ ○

VITA

Name: John Robert Reddon

Birth Place: Calgary, Alberta

Year Of Birth: 1948

Post Secondary Degrees:

University of Alberta; Edmonton, Alberta; Canada

Bachelor of Arts, Psychology and Sociology, 1971-1975

Bachelor of Commerce, Personnel Administration, 1975-1977

Master of Science, Rural Sociology, 1977-1979

Teaching Experience:

Teaching Assistantship, 1977-1978, Deptartment of Rural Economy

Grader, 1977, Department of Sociology (Statistics)

Grader, 1977, Department of Rural Economy (Statistics)

Grader, 1977-1979, Department of Organizational Analysis (Personnel Administration)

Student Consultant, 1979, Department of Computing Science.

VITA

CONTINUED

Related Work Experience:

Research Assistant, 1977-1978, Department of Psychology, University of Western Ontario

Programming Consultant, 1978, Department of Organizational Analysis

Research Assistant, 1979, Deparment of Organizational Analysis

Research Consultant, 1979, Clark Reed Decision Centre, Edmonton, Alberta

Statistical Analyst, 1979, Corewest Management Services, Edmonton, Alberta

Statistical Consultant, 1979, Marketing Information Research, Edmonton, Alberta

Statistical Analyst, 1979, Deloitte, Haskins and Sells, Edmonton, Alberta

Publications:

Reddon, John R. and Reed, Philip L. (Eds.)

MATOP1: A matrix operations package for the Amdahl 470/V6. Research Bulletin 78-2, Department of Organizational Analysis, University of Alberta, 1978.

VITA

CONTINUED

Cawsey, Thomas F., Reed, Philip L. and Reddon, John R. The relationship between human needs and job satisfaction for managers, In press.

Extra-curricular:

Co-founder and chairperson for one year of HUB Tenants' Association (University of Alberta student housing complex for 900 students)

Areas of Special Interest:

Measurement, Mathematical Models, Computer Applications, Vocational Behavior